Acquisition of advanced syntax and primary pragmatics: an investigation into children's referent choice in obligatory and long-distance control

Masters by Research

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ABSTRACT

The focus of this thesis was on the acquisition of control in typically developing children and the strategies they might employ for referent assignment in control constructions. The goals were to empirically establish the syntactic nature of obligatory control whilst in contrast investigate the development path children take in their acquisition of a pragmatically governed non-obligatory control construct.

Sixty children participated in three picture-selection tasks that tested obligatory object control and non-obligatory long-distance control. The first task established the children's base-line interpretations, whilst pragmatic topic primes were introduced in the next two tasks to confirm which referent the children preferred and establish which they would permit.

The results of this study confirmed the syntactic nature of obligatory control in a comparison of the children's results with adult controls as well as by an evaluation of the errors made by some of children in the trials. Further, results showed that children's development of non-obligatory, long-distance control develops slowly, in stages, as they mature. Like adults, children initially showed a preference for the object as a control referent, despite the potential topic-hood held by the subject of the sentence. As pragmatic discourse was added, however, the children's developing grammar differed from the adult grammar, and it was shown that the linear locality of the object seemed to hold a precedent for the children that it did not for the adults when presented with strong pragmatic primes as preceding discourse; the children were more resistant than the adults to switching from the object to the subject as the coreferent. Furthermore, the choice of verb had an impact on the referent chosen by the children, with evidence that despite the pragmatic control assumed of non-obligatory control, syntactic properties such as c-command may have an effect on the children's choice of referent in long distance control. It will be shown, however, that this effect can be broken with the addition of a strong prime, un-like the more persistent impact of linear locality on their interpretations.

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Chapter 1: Introduction

The goal of this investigation is to discover how children make referent choices in their acquisition and development of obligatory and non-obligatory control. Control clauses are constructions made up of a main (matrix) clause and an embedded clause that contains a phonetically null subject. This implicit subject in the embedded clause needs to be assigned a reference in order for the sentence to be understood. The aim is to establish how children assign this reference, how they develop towards an adult-like grammar of non-obligatory control, how that development might be impacted on by the introduction of pragmatic primes, and how such development is different to the children's acquisition of obligatory control.

There is little literature on the acquisition of non-obligatory control and it will be argued that its acquisition develops slowly towards an adult-like grammar, at a later age than might be expected. Three picture selection tasks will be used to test the referent responses of sixty children. The first task will establish the children's preferred interpretations of a control construct that contains a subject and an object argument. The first of the following two tasks will introduce discourse that will pragmatically prime either the subject or the object whilst the third task will reinforce that topic establishing which referent the children would permit from the discourse.

Control constructions are split into two sub-types: obligatory control and non-obligatory control, originally coined so by Williams (1980). In obligatory control, the co-reference is established via a structurally dominant argument in the matrix clause and the phonetically null subject in the embedded clause, whereas, in non-obligatory control there may be a choice of referent for the null subject, which can come from within the matrix clause, can be identified by the discourse or be arbitrary in nature. Whilst both are control structures, there are significant differences between obligatory and non-obligatory control which leads theorists to consider each in isolation: obligatory control (OC) is argued to be a universal, syntactically governed construct, acquired rather than learned; non-obligatory control (NOC) depends on its context for the identity of its referent and it has been shown to vary cross-linguistically (Goodluck, Terzi & Diaz, 2001; Polinksy, 2013; Thrane,2004).

Some elements of control may be acquired in stages (Hsu;1985,1989) according to the linguistic properties that define them. Children must understand the semantic nature of the verbs in the matrix clause, namely whether they act as a subject or object verb in their argument structure and also the syntactic properties of control. Whilst production of OC has been identified by the age of four (Chien and Wexler, 2000; C. Chomsky, 1969; Guasti, 2004), research will be discussed in Chapter 2 that highlights how errors have been

identified later (Goodluck,1987; Eisenberg and Cairns,1994). Hence, in Chapter 2, this paper will outline current theoretical thinking on control, highlighting the disparity in the amount of literature available on the acquisition of OC against the lack of it for NOC. First the very nature of control will be explored, setting out its properties and discussing how OC differs to NOC before moving on to the acquisition of both. The syntactic nature of OC will be contrasted against the pragmatic character of NOC and later in Chapter 2 thought will be given to the extra-syntactic learning required by the child in OC, such as the semantic content of the matrix verb. Links between the acquisition of control and the acquisition of reflexives and pronouns (Borer 1989; Janke, 2007; Koster, 1986; Manzini, 1983) will be considered and the different types of NOC explored. On narrowing down this investigation to long distance control (LDC), the pragmatic properties of this particular control construct will be discussed, introducing the idea of topic as key to the identity of the referent in NOC (Adler, 2006; Janke & Bailey,*sub*). In order to test the impact of such theories, a picture-selection task will be introduced, after a discussion of the empirical tasks that have been used in the investigation of control. What this investigation intends to establish is that if topically primed pragmatics can affect the interpretation of the empty category, and to what extent that might be. The picture selection task will allow children to choose either the subject or object from the image as the control referent of the sentence heard, in examples that have and have not been pragmatically primed.

In the preparation of this research, one area of note found was how the choice of verbs can impact on the interpretation of a sentence, which will be detailed in the last section of Chapter 2. Coding schemes for verbs have been established for linguistic research, particularly involving mental state verbs (Nixon, 2005), in order to ensure that a lack of comprehension of a verb's properties do not impact on any investigations being carried out. To this end, a coding scheme of the verbs being used in this research, those that attribute intention, will be created in order to ensure that any lack of comprehension does not impact on the children's performance in the control task.

Thereafter, Chapter 3 outlines the methods used in the tasks and the participants who kindly contributed to them. The structure of sentences will be outlined, as well as how the pragmatic primes will be added to the critical sentences in order to investigate their effect on the children's referent choice. Procedures of all the relevant elements of all three tasks will be summarised in this chapter.

Chapter 4 will show how the children's grammar of control is developed, and compares those results to one of an adult grammar, in the aim of supporting this exploration in to what is happening in the acquisition of these two control constructs. The errors made by the

children in the OC trials will be compared to the development of their referent choices in LDC as well as being analysed against other verbal and non-verbal measures to find (or rule-out) any extra-syntactic causes of these errors. In the discussion, key questions will be addressed: would the visual alternative in the picture selection task lead the children to choose a non-local antecedent as the control referent? Would the children show a preference for object or subject control as a control referent in LDC, and what level of pragmatic prime would it take to change that choice? Does the pragmatic preference for the subject as the sentence topic hold in long-distance control? It is the answers to these key questions that form the aims and objectives of this research.

These core discussions will be focused on the main group of sixty children and twelve adults. There are, however, two children whose results could not be classified with the main group's and will be considered separately as two case studies at the end of Chapter 4, in the anticipation of further research of control with bilingual children, 2nd language acquisition and atypically developing children.

It is anticipated that results will confirm the syntactic properties of OC and that they may suggest a difference in the grammar of control in adults and children in LDC, bearing out the staged nature of its acquisition and informing current literature on the age of that acquisition. What will be confirmed is to what extent the preferred co-referents can be manipulated, by both children and adults alike, and to what extent either will permit another argument as their referent choice for the null subject.

Full discussion of these results will be made in Chapter 5, leading to the conclusion of this thesis in Chapter 6. It will be concluded that whilst, as expected, the syntactic properties of OC will be evidenced in the empirical tasks undertaken in the trials, there will be a discovery of children's gradual, staged acquisition of LDC. It will be found that the linear locality of the object seems to hold a precedent for children, that it does not for adults, when presented with strong pragmatic primes in the preceding discourse; the children in the trials will be found to be more resistant than the adults to switching from the object to the subject as co-referent, gradually moving towards a more adult-like grammar of LDC as they get older.

Chapter 2: Literature Review

2.1 What is Control?

In Standard English, every sentence requires an overt subject. This can be seen in simple declaratives containing finite main verbs and complex sentences which are made up of a main and an embedded clause:

1 a) *Evie laughs out loud.*

1 b) ** laughs out loud.*

2 a) *Ella said that she always spoke her mind.*

2 b) ** Ella said that always spoke her mind.*

These examples show that every verb requires a subject in order for that sentence to be grammatical. In example 2a, the subject of the verb *said* in the main clause is 'Ella' whereas the subject of the verb *spoke* in the embedded clause is 'she'. In contrast, examples 1b and 2b demonstrate that when a verb does not have a subject, the result is ungrammatical.

However, non-finite clauses (such as infinitives, past participles or gerunds) which usually occur as embedded clauses often seem, on the surface, to break this rule. In example 3a, the verb *tries* in the matrix clause has its subject, *Evie*, but there is no argument predicated of the verb in the infinitival *to laugh.* Similarly, example 4a shows the same problem for verbal gerunds. The verbal gerund *speaking* appears to have no subject, yet the sentences are grammatical, unlike those in the (b) examples.

3 a) *Evie tries [to laugh out loud]*

3 b) ** to laugh out loud*

4 a) [Speaking her mind] was something Ella found important

4 b) *speaking her mind

In most theoretical accounts, these clauses are analysed as containing an unpronounced subject which needs to be interpreted; the subject of the embedded clause has a syntactic and semantic role but is phonetically null. In order for children to comprehend and produce increasingly complex utterances in their first language, one of the elements of language acquisition that must be developed is how the meaning of this silent, 'understood subject' is

interpreted. The implied subject in embedded, complement clauses must be assigned a reference in order for meaning to be established. For example:

5 *Ella tried to be quiet.*

The full sentence construction contains two understood subjects, one within the matrix clause and the second within the embedded infinitival phrase. The first is explicitly present, whereas the second is implicit. In example 5, the subject of the verb in the matrix clause is *Ella*, however, there is also an implicit, silent subject of the embedded infinitival phrase: *to be quiet.* This implied, null subject shall from here on be referred to as the empty category, using the expression (***ec***).

6 *Ella tried [**ec** to be quiet]*

It can be seen in example 6 that the implied subject shares the same reference as the subject of the matrix clause (Ella is the subject of both *tried* and *to be quiet*). Alternatively, the object of the matrix clause can control the reference of the implicit subject of the embedded phrase.

7 *[Ella begged Evie [**ec** to be quiet]]*

The examples above show that the interpretation of the unpronounced subject is established by an antecedent in the matrix clause; there is a referential dependency between the silent subject and one of the arguments of the matrix clause. This may be the subject as in example 6 or the object, as in example 7. It is this interpretation of the 'missing' subject that forms the basis for the study of this syntactic construction called control. The antecedent establishes a relationship between the two clauses: the argument in the matrix clause *controls* the interpretation of the implicit subject of the verb in the embedded clause. The construction in example 6 is labelled 'subject control' as the controller of ***ec*** is the subject in the matrix clause. Conversely, in example 7, the infinitival phrase *to be quiet* has an implied subject of *Evie*, the same as the object of the verb in the matrix clause. This example of control is called object control; the controller of the empty category in the complement clause is the object in the matrix clause. In both of these examples, the antecedent-dependent relation is obligatory, and for this reason these types of control are termed obligatory control.

In much of established linguistic theory, the implied subject of an embedded clause is a silent subject known as PRO (Adler,2006; N Chomsky,1981; Landau,2000/2013; Hornstein,2003; Radford, 2004; Williams; 1992). Whilst there is some debate regarding the properties of PRO, (see Janke 2007 and Landau 2013 for a review), most agree that there is syntactically represented empty category (***ec***), which needs to be assigned a value, and

this constitutes a learning problem for the language-learning child. Once children have acquired the principle that all clauses require a subject, they need then to learn how to establish the link between the two arguments by understanding the referential dependency between the empty category, ***ec***, and the subject or object of the matrix clause, such as those below.

8. *[Ella$_1$ tried [**ec**$_1$ to be quiet]]*

9. *[Ella begged Evie$_2$ [**ec**$_2$ to be quiet]]*

How then do children interpret the correct referent for **ec**?

2.2 Properties of Control

In the previous section we have seen that there is a referential dependency in control structures: the ***ec*** is controlled by an argument of the verb in the matrix clause. It can be shown in the examples below that this must be anaphorically linked to either the subject or object of that main clause. Only the indices indicated are permitted. An external referent reading in example 10 is ungrammatical, whilst a subject reading or an external referent reading in example 11 is not possible.

10 *[Ella$_1$ decided [**ec**$_{1/*ext}$ to go to the beach with Evie]]*

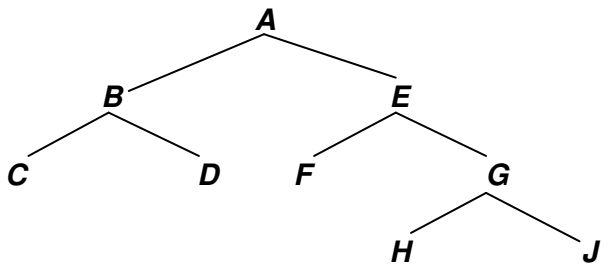
11 *[Ella$_1$ begged Evie$_2$ [**ec**$_{*1/2/*ext}$ to go to the beach with her]]*

These are examples of syntactically regulated control; the referent in the ***ec*** is regulated by structural principles. So, OC is syntactically governed, but what are these syntactic principles? There are three key syntactic properties that restrict obligatory control (OC): there must be an antecedent that acts as a co-referent to the ***ec***, this antecedent must c-command the ***ec*** and it must be local (see Williams 1980; Landau 2013). Proof that these principles regulate control comes from examples that break these restrictions; when these restrictions are broken, the sentence is ungrammatical. In order to demonstrate this, an explanation of what c-command is comes first.

Sentences are built up of individual constituents (the empty category ***ec*** being one of them) and the syntactic relationship of c-command, establishes how these constituents within a sentence construction are related to, or contained within, other constituents. Essentially, c-

command ensures that a category dependent on another is in a structurally less dominant position than that category.

12



(Radford 2004;75)

In example 12, the nodes of the tree have been labelled A to J, and represent the different constituents in a construction. Reading from the bottom: nodes H and J are immediate constituents of G; F and G are immediate constituents of E; B and E of A and C and D of B. (Radford, 2004) The relationships between these constituents are described using terms of family kinship, so G is the mother of H and J, and H and J are sisters. The syntactic relationship of c-command, noted above as a condition of obligatory control is that:

> *"A constituent X c-commands its sister constituent Y and any constituent Z which is contained within Y"* (Radford 2004;74)

Thus, using our kinship tree example, B and E are sisters and B c-commands E, F, G, H and J, whilst E c-commands B, C and D.

We have already seen that the first principle of control must hold in example 10 above. An external referent was ruled out. The second principle, c-command is a key property of OC: the controlling referent must c-command the **ec**. In example 13 below, the subject is structurally higher than the ***ec*** in the embedded clause, therefore c-command holds and the sentence is grammatical.

13 Ella_1 tried $\boldsymbol{ec}_1$ to tidy her room

In example 14, however, c-command is broken and the sentence is predictably ungrammatical. Using the example in 12, the controller is now embedded in 'D' and the ***ec*** would be 'H'. D is not sister to H, and thus there is no c-command. Although the ***ec*** can be linked referentially to the DP *'the mother of Ella'* it cannot be linked to the NP embedded within it, *Ella.*

14 * The mother of Ella$_1$ tried ***ec***$_1$ to tidy her room

The third syntactic property of OC is that of locality. Building on the principle of c-command, the empty category and its controller must be local: they must be in the same c-command domain/closest clause. In example 15, as illustrated by the indices, we see that only the matrix object can be interpreted as the proposed 'tidier' of the room.

15 [Mum$_1$ ordered Evie$_2$ [***ec*** $_{*1/2}$ to tidy her room]]

The syntactic properties of OC seem clear: there must be a syntactic antecedent, this antecedent must c-command the dependent and it must also be local to it. However, there is a second type of control. In this type of control, there is not necessarily an antecedent applicable in the matrix clause. The null subject may have an arbitrary reference as in example 16, or a reference from outside the sentence, as in example 17. In neither case is the referent syntactically determined. Examples 16 and 17 are instances of 'non- obligatory control'.

16 *[**ec**$_{arb}$ going to the beach is fun]*

17 *[Mum said [it was time [**ec**$_{ext}$ to go to bed]]]*

In example 16, the act of going to the beach is interpreted generically. This means that the sentence would be interpreted to mean that for people in general going to the beach is fun. So we can see that the empty category has no specific reference. Alternatively, there may also be clues to a specific referent in the context of the sentence or it may be implied that the subject in **ec** is the speaker, which would certainly seem likely in example 17. Whichever is the case, the implied referent is not syntactically determined, unlike in obligatory control. The terms obligatory control and non-obligatory control, first termed by Williams (1980) are now established labels for the two types of control structures, one is regulated by syntactic principles, whilst the other allows a level of flexibility and choice in the assignment of its referent. The referent of ***ec*** in non-obligatory control can be decided in three ways: it can be determined by the prevailing discourse, it could be external to the local clause or it could be an arbitrary reference. Moreover, even in the interpretation of an arbitrary reference, understanding is likely to be influenced. Indeed, in these non-obligatory control contexts, control appears to be based on the discourse features that are present (Bresnan,1982; Landau,2000; Williams,1992).

So, whilst obligatory control (OC) is syntactically governed, non-obligatory control (NOC) is not and one of the learning problems for the child is to decide which is which. They need to work out when the decision is a structurally defined one and when it is based on extra-syntactic decisions. As was seen in examples 16 and 17, in such instances of NOC, the referent of ***ec*** could be determined by cues within the discourse, a referent external to the sentence or indeed referenced arbitrarily. If the referent of ***ec*** in non-obligatory control can be determined by the pragmatics of the discourse, it should be possible to manipulate the preferred choice of referent and thereby the interpretation of a sentence. However, as obligatory control (OC) is regulated syntactically, no addition of discourse should influence the interpretation of the control referent. One key issue then in child language acquisition is the point at which children disallow obligatory control to be affected by discourse factors.

There is much less acquisition research surrounding these NOC structures, than there is on OC, perhaps because of this subjective nature to their interpretation. One question that arises is whether it really is that simple: one element of control is governed syntactically whilst the other relies on pragmatic interpretation provided by discourse. The addition of pragmatic cues as preceding discourse in OC should not affect the choice of co-referent for the ***ec***, the testing of which forms part of the empirical research of this paper. It is anticipated that the choice of referent in NOC is susceptible to change with the addition of such discourse. What this thesis will establish is the strength of contextual cue necessary for that choice to be manipulated. It will also consider the properties within these sentences, independently of the contextual cues, that might impact whether there is resistance to either subject or object control as a preference, and whether the choice of the matrix verb has any impact on that reference choice.

To summarise, in this section it has been shown that, in obligatory control, the null subject must have a local (example 18), c-commanding (example 19) antecedent.

18 Ella$_1$ ordered Evie$_2$ ***ec***$_{*1/2}$ to go swimming. *Locality*

19 * The sister of Ella$_1$ hopes ***ec***$_1$ to go swimming *C-Command*

This is different from the empty category in LDC, which does not require a local or c-commanding antecedent, and shows flexibility in terms of its reference choice that OC does not have, as demonstrated in example 20.

20 [Ella hopes [that ***ec***$_1$ going swimming [will please Evie$_1$]]]

With their different properties clear, we can now turn to what is known about children's development of these structures.

2.3 Acquisition of Control

The nature of control constructions, developed by children as they acquire language, has been studied extensively since the 1960s. (Adler, 2006; Cairns et al 1994; Chien and Wexler, 2000; C. Chomsky, 1969; Goodluck, 1978, Hsu, 1985; Landau, 2001) with general acceptance that control of complements has been mastered in production by the age of four. It has been found that specific syntactic structures appear in a particular order, Hsu *et al* (1985, 1989), in particular, finding that children developed through stages of control, and at times only allowed either object control or subject control, before mastering the construct.

In respect of complement clauses, the first to appear in English are subject-less infinitival phrases (example 21), shortly followed by infinitival clauses with overt subjects (example 22) (O'Grady; 1997,102). As outlined in Section 2.1, it is non-finite clauses such as these (together with gerunds and adjuncts) that have a control relationship in English. At the stage outlined by O'Grady they lack the infinitival morpheme *to,* which he says transpires around the age of two with infinitives.

21 I want [do it]

22 Want [mummy come]

This early use of complement clauses occurs between the ages of 18 months and two years, with more complicated complement constructions continuing to develop up to the age of six, as outlined by O'Grady (1997). However, other research suggests a later mastery of the interpretation of control in infinitival complements of around the age of four to five. (Atkinson, 1992; Goodluck *et al*, 2001), which would imply that whilst very young children are using complement clauses they have not yet mastered control.

In order to master the referential dependencies of these constructions, children firstly need to understand not only the argument structure of verbs, but also the lexical nature of those verbs in order to distinguish subject control verbs from object control verbs (C.Chomsky,1969; Guasti, 2004). In addition, children need to know the difference between finite and non-finite verbs; the difference between a referential, implicit, subject versus an explicit, overt, pronoun; as well as the syntactic, hierarchal, relations of c-command and locality, outlined in Section 2.2. It is only on the acquisition of these different factors that the child can master the structure of control.

Carol Chomsky's influential work of 1969 investigated this pattern of acquisition and she found the rate of acquisition depended not only on the finite nature of the verbs but also their semantic roles. Specifically, she found that command verbs such as *tell* and *order* were

easier for children to reference correctly as opposed to verbs such as *ask,* that make requests, with the verb *promise* being one of the last control structures to be mastered, often past the age of 5. The fact that *promise* breaks locality, may mean that its later acquisition is as a result of a further layer of learning being required by the child (Janke & Perovic *sub*). With command verbs such as *order*, the null subject in the embedded clause is controlled by the object of the matrix, whereas, the argument of *promise* that references the empty category is the subject of the matrix. Furthermore, the 'middle-ground' of request verbs, such as *ask*, may be controlled by either the subject or object of the matrix clause. In such cases, an interesting argument is made by Culicover and Jackendoff (2006) in that there is also the possibility of both arguments being the control referent, as seen in example 25b ($_{1+2}$ denotes joint control).

23 [Ella$_1$ promised Mum$_2$ [**ec**$_1$ to tidy her room]]

24 [Mum$_1$ ordered Ella$_2$ [**ec**$_2$ to tidy her room]]

25a) [Ella$_1$ asked Evie$_2$ [**ec**$_{1/2}$ to go home]]

25b) [Ella$_1$ asked Evie$_2$ [***ec*** $_{1/2\ /1+2}$ to go dancing]]

Thus, when one considers the nature of that which needs to be understood by children in order to master control, it is not surprising that its acquisition should be grasped in stages. Despite the consensus reported earlier that control is generally mastered before the age of four (in typically developing children), as well as research that shows children have enough syntactic and lexical knowledge to understand which argument in the matrix clause controls ***ec*** in the embedded clause by the age of three (Guasti, 2004), errors are still noted at later ages, in particular in exceptions such as the verb *promise*, discussed previously and with reference to adjuncts. Example 26, is one of the sentences tested by Goodluck (1987) in her research into control in adjuncts. She found that, despite the participants being aged between five and six, the children incorrectly chose the object as the control referent 28% of the time. So we see that whereas production may indicate early acquisition, comprehension studies suggest that the developmental path is a longer one.

26 Mickey hugged Daisy after ***ec*** climbing the ladder.

One of the reasons Adler (2006) believes is responsible for this delay in acquisition of control into adjuncts is the position those adjuncts hold in the syntactic hierarchy of the sentence and how that positioning is understood by the child in stages; if the adjunct is not embedded at a low enough level the construct will be treated by the child as NOC, rather than OC which explains their liberal interpretations of the ***ec*** in these structures.

Furthermore, Eisenberg and Cairns (1994) found that five year old children could be influenced in their preference of control referent by previous discourse that offered a sentence-external referent for the empty category rather than choosing the obligatory referent present. For example, in the act-out task containing the sentence in 27a, some children had Ernie finding Mickey and in 27b the enactment was of Mickey carrying Bert.

27a) Bert wants to find Mickey

27b) Ernie begs to carry Bert

It is this line between the syntactic and the pragmatic that drives this investigation, both in terms of whether older children can be influenced in their choice of referent in OC, but more so how that discourse might influence their interpretations of ***ec*** in NOC. This paper intends to consider the development path that children take against that of an adult reading of control, in order to examine if any such variables are parallel or deviant across the different age groups.

2.3.1 Acquisition of obligatory control

Obligatory object control is one of the earliest control constructions mastered by children and, as outlined in Section 2.2, OC is structurally governed, which means the interpretation of the implicit subject in the embedded clause is strictly limited to a designated controller in the matrix clause. As can be seen in example 28b, if a suitable controller is not present as an antecedent in the matrix clause, the utterance is ungrammatical.

28 a) [Ella told Evie$_1$ [***ec***$_1$ to go to the beach]]

28 b) * [Ella told [***ec*** to go to the beach]]

Similarly, in the following example, the identity of ***ec*** is controlled by *Evie; Evie* is the referential antecedent of ***ec.*** As has been seen, this anaphoric binding is typical of OC and is in line with the principle that obligatory control structures require a local and c-commanding antecedent (N. Chomsky, 1981; Hornstein, 2000; Landau, 2000, 2013; Perovic & Janke, 2014; Williams, 1980).

29 [Mum ordered Evie$_1$ [**ec**$_1$ to tidy her room]]

Despite the general academic consensus of locality in OC constructions (N. Chomsky, 1981; Hornstein, 2000; Landau, 2000; Williams, 1980), questions have been raised as to whether this condition is solely responsible for the choice of controller, or if the thematic goal of the

verb in the matrix clause is the root (O'Grady, 1997). This raises the interesting question as to how much of control is derived from lexical semantics, as opposed to those elements of control, such as finiteness, that are clearly syntactic (Landau 2013).

Furthermore, as noted in Section 2.1, with the acquisition of OC is the need to distinguish between object and subject control. It is widely accepted that the interpretation of the controller in OC, being either object or subject led, is lexically specified within the semantics of the control verb (Atkinson, 1992; Landau 2013). The predicates occur as two types:

> Subject control
> *try, condescend, promise, decide, plan, agree, hope, prefer, wonder, refrain*.
>
> Object control
> *persuade, encourage, recommend, appeal, force, plead, order, urge, dissuade*.
>
> *Examples taken from Landau (2013)

However, O'Grady (1997) suggests that control corresponds with the transitivity of the verb; object controlled if transitive and subject controlled if not (again the transitive verb *promise* needs to be dealt with as an exception to this generalisation). Thus, the transitivity of the verb in the matrix clause identifies whether the controller is the subject or the object. This condition would support research by Fabian-Kraus and Ammon (1980) that children find verbs that are obligatorily transitive easier than those which can be used intransitively, such as *find* in example 30. An object is required in order for the sentence to be grammatical.

30a) You will find a cup in the cupboard.

30b) * You will find in the cupboard.

The universal syntactic nature of control is questioned by Goodluck, Terzi & Diaz (2001) as their study of Greek indicates that null subjects can occur there in finite clauses, unlike English, where they can only occur in non-finite clauses such as gerunds and infinitives. Furthermore, in their comparison to Greek of the verbs *want* and *try*, which are co-referential with the subject of the matrix verb (subject control) in English, they found that whilst *prospatho* (try) corresponded with the English (that is the ***ec*** being co-referenced with the subject of the matrix clause) *thelo* (want) did not. Interestingly in answering whether it is the lexical properties of the matrix verb or the structural properties of the embedded clause that is most dominant in the control of **ec**, they found a linguistic difference. The Greek children were more sensitive to the lexical semantics of main verb whereas the Spanish children were more sensitive to the structural properties of the clause (in particular the subjunctive versus the infinitive). With respect to the nature of control acquisition, they found the children

were adult-like like in their reluctance to seek sentence-external referents, contra Wexler (1992) who found control to be subject to maturation.

In her research into control in adjuncts, Adler (2006) maintains that the syntactic structures of control are constrained by the principles of Universal Grammar (Chomsky, 1981); however, she emphasises the importance of learning in the process of control acquisition. For example, the structure of a verb phrase may be syntactically specified, but the lexical nature of verbs which require a direct object must be learned. This would help explain the cross-linguistic differences seen in control such as those noted above by Goodluck, Terzi & Diaz. Controversially, Culicover and Jackendoff (2005) take this argument further by arguing that control is purely a semantic construct and that the controller depends on the semantic properties of the head noun.

Contra Culicover and Jackendoff's theories, we have seen that as a syntactic construct OC shares a number of syntactic properties with anaphoric binding (Adler, 2006; Borer 1989; Janke, 2007; Koster, 1986; Manzini, 1983); these properties remain incidental in an account of control that is purely semantic. Reflexive anaphoric binding, like control, is a local relation. It is acquired at a similar age to control and research has shown that children accurately interpret reflexives by the age of four (Jakubowicz, 1984). Like OC, the interpretation of reflexives is syntactically regulated and it has been suggested that in OC, the ***ec***, simply acts as an anaphor and, like reflexives, is governed by Condition A of the Binding Theory which states that a reflexive (*himself)* must be bound in its governing category, just as OC is bound by its locality. (Hornstein, 1999; Manzini, 1983, 1986).

However, despite the similarities, the referent for the ***ec*** is determined lexically as well as syntactically, as discussed above, unlike reflexives. So whilst these constructs share syntactic properties, they are not one and the same. This would be supported by the findings by Janke & Perovic *(sub)* that reflexives and OC do not develop simultaneously: OC is acquired by children slightly later than reflexives and they suggest this could be because of the additional elements that need to be learned in OC. As well as the lexical properties of OC, discussed earlier, there is also the predictable nature of reflexives: they are always a direct argument of a transitive verb and as such there are fewer requirements for the child to learn than in OC. What are interesting are the parallels that they do share and these links between NOC and pronouns are discussed further in Sections 2.3.2 and 2.4.

In summary, acquisition of OC involves an implicit knowledge that the controller in the matrix sentence must c-command the null subject. As the subject of the main clause c-commands all that is contained in the rest of the sentence, the subject could always, potentially, be the

controller of the embedded empty clause, (Goodluck, *et al*, 2001). This shows that c-command is not sufficient on its own and that locality is another key property to be learned by the child. Therefore, tacit understanding of locality, syntactic relationships and the semantic content of the arguments, is necessary for a child to distinguish which control referent is grammatically correct.

In the next section attention is turned to the few studies on the acquisition of NOC.

2.3.2 Acquisition of Non-obligatory control

There is less literature on the acquisition of NOC than OC (Adler 2006; Goodluck 1987; Lust 1987). Further, there are different types of NOC requiring examination, one of which was introduced in section 2.2 (example 12) which was arbitrary control; there is no controller present in this construction so it is clear to see how it is not regulated by the locality or c-command conditions that preside over OC. A type of control, namely adjunct control, was investigated by Adler (2006) using a truth-value judgement task, though adjuncts seem to fall in the realm of both OC and NOC, depending on their type and position held (Landau, 2013). The type of NOC that is of particular interest to this research is long distance control, where the controller is present but not necessarily local:

31a) Ella told Evie that going to the beach was a good idea.

In long distance control NOC (LDC), the controller of the empty category may be the subject, the object, both, or neither, as shown by the indices in the following example.

31b) [Ella$_1$ told Evie$_2$ [that ***ec***$_{1/2/1+2/arb}$ going to the beach was a good idea]]

Therefore, the constraints on OC are not applicable in the case of LDC, in that there is not a requirement for locality or for c-command to be present. Without these boundaries, what is it that a child needs to learn in order to successfully develop an understanding of long distance NOC? Firstly, the child may have a choice of antecedent in LDC as, un-like OC, there is not necessarily a unique controller; there may be multiple DPs to choose from. The control referent in example 31b could be Ella, Evie or somebody from outside the sentence altogether. Given that the child is not constrained by structural principles, it must be the case that there are extra-syntactic components, such as semantic content and pragmatics that are

needed by the child. The two varieties of control are further considered by Hornstein (2003), as he outlines how the differences in OC and NOC are "what one finds with locally bound anaphors versus pronouns" (2003 p14). That is, he expects to see the obligatory controlled empty category behave as one would expect of reflexives and non-obligatory controlled empty category to behave as one would expect of pronouns.

This similarity of properties and acquisition between OC and reflexives has been discussed in Section 2.3.1, but what of the link between pronouns and NOC? It was previously noted that OC is the first control construction to be mastered by children, followed later by NOC. Similarly, whilst reflexives are acquired by the age of four (Jakubowicz, 1984), personal pronouns are not mastered until later. Reflexives are governed by principle A of the binding theory (Chomsky 1981), whilst pronouns are governed by principle B, which states that a pronoun (*him*) must be unbound in its governing category (i.e. clause).

32 a) Ella_1 told Evie_2 to help herself $*_{1/2}$

32 b) Ella_1 asked Evie_2 to help her $_{1/*2}$

In example 32a, it can be seen that the reflexive *herself* must refer to *Evie*, in line with principle A, whereas, in 32b, the pronoun *her* must refer to Ella, in line with principle B.

Chien & Wexler's (1990) research found that children correctly identified local antecedents for reflexives, in line with principle A, however, they were considerably delayed in their understanding of non-local antecedents for pronouns, which continued to cause difficulty past the age of six. This is termed the Delay of Principle B Effect. As a component of UG, binding is not learned, but there is a difference in the amount of learning required in the actual interpretation of reflexives versus pronouns, just as there is in OC versus NOC. Reflexives are regulated syntactically (like OC) and are always bound variables, as outlined in principle A. Conversely, pronouns can be either bound variables or they can be regulated by co-reference (Chien & Wexler 1990), discussed in more detail in Section 2.4. Thus, there are either pragmatic or processing elements that are essential to their understanding, which as Janke & Perovic (*sub*) point out leads to additional complexity for the child. As has been seen on a number of occasions in this paper, it is these extra-syntactic variables that lead to delays in acquisition.

Landau (2001) agrees that there is a clear distinction between obligatory control (OC) and non-obligatory control (NOC) and in his later work proposes that there are likely to be two

distinct grammar modules at play in their acquisition (2013:230). It is the investigation of such a theoretical position, by way of empirical enquiries, that is at the heart of this thesis.

When one considers the complexity of NOC, with all of the possibilities available for interpretation, it must be a multifarious learning task for a child. There is a predictable syntactic model on which OC is based that is not available in the acquisition of NOC. It is not surprising then that OC is the first control construction to be mastered. What is pertinent is the lack of research in to the acquisition of NOC. There have been theoretical arguments (on-going) as to where it sits in linguistic theory (a summary of which are given by Landau (2013; Chapter 7), but little empirical research on the development of its acquisition, unlike OC. The interpretation of the referent in NOC can be manipulated by pragmatics, and according to literature, the construct appears to be governed by pragmatics, as opposed to syntax (Bresnan, 1982; Landau, 2013). What is of interest to this paper is to what extent this is free: whether there is actually a structural preferred reading of LDC, despite the lack of syntactic governance; whether there needs to be a certain strength of contextual cue in order to switch referent choices; whether children adhere to locality in LDC. The answers to these questions are central. Thus far, linguistic research seems to be content with the polarity of OC and NOC, so much so that the NOC "signature" provided by Landau (2013) is simply a negative definition of OC. In the next section, we move towards the discourse properties that regulate non-obligatory control. It will be shown that it is the notion of topic that is key to NOC's interpretation and that their regulation, whilst sharing properties with pronouns, is not parallel to them.

2.4 Pragmatic Elements of Control

Early work in to NOC by Grinder (1970) asserted that NOC was governed syntactically, rather than pragmatically, and listed a number of structural restrictions which were later challenged (see Landau 2013 for an overview). Later work began to suggest that the referent for NOC is implied from the discourse as exampled by Bresnan (1982), which she termed anaphoric control, illustrated in her example below:

33 Tom$_1$ felt sheepish. PRO/***ec***$_1$ Pinching those elephants was foolish.

Further work likened NOC to personal pronouns. As discussed in Section 2.3, a comparative language process to that of the acquisition of control is the acquisition of pronouns. As established in Principles A and B of binding Theory (Chomsky 1981) reflexive pronouns (anaphors) are different to personal pronouns in that they are bound by locality, agreement and c-command, similar to OC. However, for an accurate interpretation, the antecedent of personal pronouns must be outside the locality of the clause as seen in example 32.

So, NOC is similar to pronouns in that it acquires its referent from the discourse. One difficulty in this parallel of NOC with pronouns is that pronouns appear in two forms (Perovic & Janke, 2013): they can be bound variables that are subject to syntactic binding (more like OC than NOC) or they can be interpreted by co-reference to a noun in the discourse, similar to LDC. A further difference is outlined by Adler (2006) where she concludes that the referent for the ***ec*** is more restricted than the referent of pronouns in similar contexts, as can be seen in her examples below:

34a) John said to Mary that it would be easy ***ec*** to prepare herself for the exam.

34b) * John said about Mary that it would be easy ***ec*** to prepare herself for the exam.

34c) John said to/about Mary that it would be easy for her to prepare herself for the exam.

It can be seen in example 34c, that either statement, when containing an overt pronoun, is grammatical, whereas ***ec*** in the LDC constructs of examples 34a and 34b seem to require additional criteria. One such criterion suggested as being influential on the interpretations of the NOC co-referent is that it has a logophoric source (Bresnan, 1982; Landau, 1999; Williams, 1992). This theory states that the referent of ***ec*** must be the logophoric centre of the matrix clause, i.e. the 'doer', thinker or perceiver in the sentence, and would be supported by the examples in 34. One concern is that Williams has noted a very few examples in which the ***ec*** is inanimate, which challenges the idea that the control referents of ***ec*** should be logophoric, since only a human can be described as the thinker or perceiver in a sentence, a problem he himself tackles in his later publication (1994).

A second discourse theory is that the antecedent is influenced by the topic of the sentence (Adler, 2006; Reinhart, 1981). In English (as an SVO language) there is a preference for the topic to be the subject of the sentence. In example 35, *Ella* is considered to be the topic of the sentence as she is the subject.

35a) Ella talked to Evie about the beach.

Nevertheless, this initial preference can shifted in the above sentence by introducing another topic. The *'as for'* marker is often used to illustrate this shift, as in example 35b:

35b) As for Evie, Ella talked to Evie about the beach.

Aside from subject-hood, the topic of a discourse is usually established from the preceding discourse, and may be established by its repetition in that discourse (Reinhart, 1981). There is a hierarchy that suggests the primary preference for a topic is set by the mention of it in the preceding discourse which over-rides the preference for the subject as the topic (Adler 2006). This is of particular interest to this study as the trials involve introducing pragmatic content in order to assess if, and when, the children are swayed from their original referent of choice, which may have been the subject. There have been suggestions that children aged five to six will opt more frequently for an external referent, rather than the topic, which Goodluck (1987), suggested might indicate an immature grammar; they are not yet restricted to the topic as a sentence-internal referent. Adler agreed that children had not mastered discourse before the age of six and found that they were freer with their interpretations, rather than being led by the topic.

Returning to the idea that control is acquired in stages, there is evidence that young children may be influenced by preceding discourse in OC, as well as in NOC. As reported by Perovic & Janke (2013), Eisenberg & Cairns (1994) found that a sentence external referent could be chosen over the obligatory interpretation by children aged 5, if it had been contained in the prior discourse. Despite the binary division between NOC and OC in prevailing literature, this is suggestive of a link between the two types of control, which needs to be considered.

It was noted earlier in Section 2.3.2 that there is little empirical research in to the acquisition of NOC, and Landau concurs that the pragmatics of NOC is faced with a similar paucity: "The very few linguists who have studied the pragmatics of NOC are vague …" (2013:254). It is hoped that the analysis and discussion of the results in this paper will add to the debate, particularly on "the points of contact between syntax and pragmatics" that Landau suggests invites further research.

2.5 Design Issues for the Current Study

The previous sections have shown that recent studies have considered extensively the nature and properties of obligatory control and the stages of its development in typically developing English-speaking children. Since Williams (1980) originally defined the two types of control as obligatory and non-obligatory, much work has been done into the acquisition and nature of OC (Adler, 2006; Cairns et al 1994; Chien and Wexler, 2000; Goodluck, Terzi & Diaz, 2001; Hsu *et al*, 1985; Perovic & Janke, 2013), particularly in English, whilst many more questions remain unanswered in respect of NOC. This experimental investigation intends to build on these previous studies by using a different task to those discussed earlier. The studies considered thus far have tended to base their tasks on a child's preferred referent choice in OC. The picture selection task used in this investigation, together with the measured addition of discourse in the trials, not only indicates the child's preference in OC, but additionally gives an insight in to what the child will permit as a referent with the pragmatic additions. This should inform research in to how children's syntactic knowledge in OC is developed, and further take a rare comparison, using experimental data, to compare and contrast this to the development of non-obligatory, long-distance control (LDC). The constructions in the data will allow a unique tracking of the co-development of syntactic and pragmatic ability.

As Thrane states, his research concerned obligatory control and on that basis was "in accord with the majority of control studies" (2004); such a weighting in linguistics research gives rise to the need for balance in the investigation and understanding of NOC. It may well be that as OC is purely syntactically structured it is seen to offer a more scientific approach to a theorist, whereas the controlling reference of NOC can be determined by discourse. However, as there is still much debate on whether the subject of control relationships in linguistics falls in the realms of semantics, pragmatics or syntax, it would seem that such narrow labelling has the potential to limit, rather than to inform. Thrane (2004) goes so far as describing control as "the meeting place of matters syntactic, semantic, and pragmatic." and Safir (2013) states that semantic concerns persistently "intrude" on a syntactic theory of anaphora patterns, however, does not address these issues in his writing, choosing to retain a focus on the syntactic content. It is hoped that this paper, by taking a cross-field approach, can add substance to those debates.

Despite the seemingly cross-linguistic characteristic of the syntax of control, the lexical semantic nature of verbs in different languages means that children need to make distinctions of how these empty categories are governed in their native language. Furthermore, the universal syntactic nature of control is questioned by Goodluck, Terzi &

Diaz (2001) as their study of Greek indicates that null subjects can occur there in finite clauses, unlike English, where they can only occur in non-finite clauses such as gerunds and infinitives. In addition, when considering NOC, Landau notes that: "There is a curious scholarly asymmetry between the extensive cross-linguistic research on OC and the virtual absence of careful analyses of NOC outside English."(2013: 231). Whilst this current study is based primarily on the development of non-obligatory control in English, for native speaking, typically developing children, it could provide a base for further investigations in to the development of NOC in cross-linguistic research, second language acquisition and in atypical populations.

Thus far, we have considered the different types of control, the properties of OC and NOC and the literature that has informed research in to their acquisition. In order to proceed with this investigation, consideration needs to be given to the appropriate method to use in the trials. Attention now turns to the approaches that have been employed in previous empirical studies of control, together with consideration of any impact the choice of verbs may have in experimental trials and how to ensure a fair measurement of the particpants' abilities.

2.5.1 Methodology considerations

Research in to the acquisition of control has historically used a variety of studies without coming to an agreement on the types of errors children make. In particular, it is notable that the act-out tasks popular with so many **(**C. Chomsky, 1969; Marotos, 1974; Eisenberg & Cairns, 1994) can inhibit the choice of external references; they require the children to choose one interpretation for the trial sentences and act out that version, so it is impossible to verify whether other interpretations had been considered by the child. Whilst this test provides a good way of determining what interpretation a child prefers, it does not tell us if children permit different interpretations. Grammaticality judgement tasks allow children to choose both sentence-internal and external references. (Guasti, 2004). However, care must be taken in the nature of any grammaticality judgment tasks as many require a level of metalinguistic knowledge from the participants, such as that noted in Eigsti and Bennetto (2009). One method of scaffolding such a judgement could be to offer a choice of preference in constructions, rather than require a child to choose which sentence is ungrammatical. A more comprehensive way of testing, outlined by Adler (2006) is that of a truth value judgement task. In this case, a story is acted out with props, followed by a puppet describing in one sentence the story that has taken place. This target sentence about the events could then be judged by the children as being right or wrong, allowing testing of object, subject and

external referents, without the child needing to have the metalinguistic understanding of identifying an ungrammatical sentence.

This idea of the child choosing their preferred interpretation, from a binary set, is the basis of the picture selection task being applied in this research. A picture-selection task will check children's preferences, and the staggered contextual cues can prompt them further to see what judgements their grammar allows. As the investigation is into the children's referent choice in OC and LDC, the images could be based on either the object of the matrix clause as referent (obligatory in the OC complement constructions) or the subject as the co-referent for the ***ec.*** The pictures could show an identical action being carried out, with the variable being who the character was that was carrying out the act (the subject or the object). One possible drawback could be seen to be that this does not allow for an external referent to be postulated, however, it is precisely that focus on to the object or subject that this investigation was hoping to maintain. What this type of task does allow is the development of referent choice as pragmatic content is added in both OC and LDC. Not only will this provide evidence of which referent the children prefer, but also which they will permit.

Historically, gauging the ability of participants in investigations into the development of syntax, have been based on productive measures such as MLU, which may lack "reliable measures" (Durrlemann & Zuffrey, 2009). As suggested by Eigsti (2007), additional measures over and above vocabulary abilities need to be used in establishing matches and comparisons between the participants. For this current research, three assessments were carried out in order to determine the children's abilities. It is expected that by using recognised, national, standardised tasks any assertions regarding the participants' verbal and non-verbal skills will be more robust, and any comparisons of the results will be based on reliable measures. Firstly, the Test for Reception of Grammar (TROG-2) measured the children's comprehension of grammatical contrasts with twenty constructs being tested, four times each using different test stimuli. The second verbal assessment was the British Picture Vocabulary Scale, (BPVS) which was used to assess the children's receptive vocabulary comprehension. Here the tester says a word and the child responds by choosing an image from four options that they feel best illustrates the word's meaning, so no reading or verbal response is necessary. Finally, a sub-test of the Kaufman Brief Intelligence Test (KBIT) was carried out which measured non verbal cognitive ability, in a variety of matrices. The results of all three assessments have been transposed to standardized scores in order to make comparisons both within the group of participants as well as with the general population to gauge typically developing responses.

Often, in the case of linguistic research into a child's use of matrix verbs, results are presented in qualitative terms, rather than quantitative (Nixon, 2005), relying on a discussion of the language produced as opposed to a data analysis of the language comprehended. The coding of the children's comprehension of verbs that has been undertaken in this paper, discussed in detail in Chapter 3, for the matrix verbs such as *order* and *persuade,* has been developed to mitigate such concerns.

Finally, when considering the nature of the tasks, note has been taken that in addition to the parallel between NOC and pronouns observed in Section 2.3.2, Adler (2006) argues that the reference of NOC is more restricted than that of pronouns as these allow reference to anyone who is significant in the previous discourse. On this basis, we have chosen to use topichood as the variable that is manipulated in the current test. The topic of the discourse has been shown to influence the interpretation of the control referent and hence could be used to test how robustly the children held their original preference of co-referent. Recall Adler's hierarchy of topic choice that indicated how the introduction of the topic in the preceding discourse could over-ride the subject position preference for topic. Assuming such a link between topic and control referent, it will be of interest to identify if a similar situation holds in the relationship between introduced preceding discourse and the co-referent of ***ec*** in LDC. A similar use of topic to that implemented in this paper was used in research on adults by Janke & Bailey (*sub*), in which they termed the staged discourse introductions as weak and strong primes. The weak prime simply introduced the topic (example 36b), whilst the strong prime established and reinforced it (example 36c).

36a) Dancing in tap shoes was a tricky affair.
36b) I'm going to tell you something about John. Dancing in tap shoes was a tricky affair.
36c) John is learning a new dance. John goes through the steps very slowly. Dancing in tap shoes was a tricky affair.

The purpose of the tasks in this research are to provide empirical evidence of the children's preferred referent for the ***ec***, without any pragmatic discourse, as well as investigate which co-referent they will be permit on the addition of weak and strong pragmatic primes. The nature of the picture selection task has been considered favourably against other methods, and consideration has been given to measuring the abilities of the participants that are taking part in the trials. Thought now needs to be given to the format of the sentences used in such a selection task, in particular the impact that the choice of verbs may have on any results, and are thus outlined in the next section.

2.5.2 Verb Choice Considerations

In his comments on research of embedded infinitival phrases by Fabian-Kraus & Ammon (1980), O'Grady (1997), warned that the choice of verbs in experiments can have an impact on the children's performance in the task; the grammatical properties of the selected verbs need to be considered both when planning a task as well as when examining any errors presented in the resulting data. It is hoped that by considering the grammatical properties of the verbs used in our trials, along with the development of a coding scheme to assess the participants' understanding of the vocabulary items used in the tasks, will overcome such issues in this paper.

In her seminal work, Carol Chomsky (1969) points out that children acquire regularities first and exceptions later. She says there are "two semantic classes and an unambiguous syntactic process associated with each." Command verbs such as *tell* comply with the locality principle, offering local antecedents, whilst verbs such as *promise* do not. For this reason, care must be taken in the choice of verbs present in the matrix clause in order to ensure comparisons are made by exploiting predicates with similar semantic properties.

Furthermore, De Poot & Semin (1995) draw attention to the interpretation of action verbs versus state verbs and find that the choice of these verbs in a question can have an impact on the answers given. They conclude that if a question is formed with an action verb the subject is used to formulate the given answer, whilst if a state verb is used to form the question, it is the object that is seen as the originator in the answer.

37a) Why do you *read* the Tribune? - will consider the *subject* in answer

37b) Why do you *like* the Tribune? - will consider the *object* in answer

Bearing in mind that the focus of this research is the choice children make between a subject or object as a control referent, the impact of which verbs are chosen must be measured in any discussions. Whilst direct questions are not being asked in the tasks, children will be asked to choose an image that best fits a sentence, so the nature of the verbs in those sentences must be taken into consideration.

Additionally, the semantic acquisition of many mental state verbs is likely to be later than the syntactic acquisition of control, which can be as late as 8 years for verbs expressing uncertainty (Nixon, 2005). Mental state verbs are verbs that express a cognitive, non-observable action, such as *know, think, wonder,* and *believe* (Klainerman, 2010). Errors in the acquisition of control, noted in earlier literature, may in fact be due to a participant's lack

of semantic or pragmatic development in their application of such mental state verbs. In order to overcome such limitations, Nixon explores a coding scheme of mental state verbs used by children. This could be used to assess children's' understanding in order to mitigate the possibility that the verbs used in trial questions, and a child's understanding thereof, could influence the answers given. Whilst this investigation is not using mental state verbs, it will be using verbs that attribute intentions to the self and others, such as *persuade* and *order*. The children will need to understand those intentions in order to comprehend the sentences provided in the tasks. As such, a coding scheme to investigate the children's comprehension of such verbs will need to be developed specifically for this project.

The first step in assessing the children's understanding of the verbs was to ask them what they thought each one meant. These questions would require spoken, unplanned answers from the children and whilst the initial thought on criteria was to seek dictionary definitions, it seemed unlikely that these would offer the kinds of responses that children would produce spontaneously. As well as the setting of the criteria, the questions themselves would need to be formulated without a control construction as it is this that was to be tested in the trials. How all of these issues were addressed is developed in Section 3.4.

2.6 Final Remarks

To conclude, this chapter has explained the referential dependency in control structures: OC as a syntactically governed construction and NOC as one that is pragmatically governed. The properties of each type of control have been discussed and one of the issues the child is faced with, in the acquisition of control, is to decide which is which.

Current and historic thinking have been reviewed and of note is the disparity between the amount of literature available on the acquisition of OC against that of NOC. Whilst the acquisition of OC has been evidenced by the age of four, errors occur as late as six. Hence, Section 2.3 reviewed the extra-syntactic learning required by the child in OC, such as the semantic content of the matrix verb, which arguably has an impact on acquisition. Furthermore, the predictable syntactic model on which OC is based is not presented in NOC, the pragmatic properties of which have been discussed in Section 2.4, leading to later acquisition. The distinction between the acquisition of OC and NOC has been likened to the distinction between the acquisition of reflexives and pronoun, one being locally bound and one being freer. Now distinct from OC, additional consideration was given to the different

types of NOC, narrowing down LDC as the focus of this investigation and how children develop LDC in stages, as opposed to the innate quality of OC. The syntactic regulatory nature of OC means that the addition of contextual cues does not affect interpretation of OC in adult grammar. If the children have acquired OC then, the children's interpretation of OC should remain unaffected by the cues, too. The pragmatic nature of LDC, however, should mean that the children's choice of referent can be manipulated; the question is, to what degree.

This pragmatic quality of LDC was explored in Section 2.4, introducing the idea of topic as key to the co-reference of ***ec*** in NOC***.*** The variety of the empirical tasks that have been used by linguists in the investigation of control were initially discussed in Section 2.3 and, further considered in Section 2.5, and consequently narrowed to a picture-selection task. The proposal made was to add tiered topic primes, as contextual additions to OC and LDC control constructs, in a picture-selection task. What will be established is to what extent these topic primes affect the children's choice of co-referents, whether this depends on the strength of the prime, if there is a general preference of object or subject control in LDC and whether there is a disparity in results with different verbs present in the matrix clause.

The careful choice of verbs was particularly of note when the literature on methodology was considered, not simply because of the impact the verbs can have on the interpretation of a sentence but also because of the need to be confident of the participants' comprehension of the verbs' meanings in order to test their control referent preferences. To this end, a coding scheme of the verbs being used in this investigation will be carried out, which will form part of the tests that the children participate in, as outlined in Section 2.5.2.

Whilst Chapter 2 has dealt with the theories behind this research, specific details on methods and procedure are laid out in the following chapter.

Chapter 3: Method and Procedure

3.1 Participants

In total, 62 children participated in the study, aged between 7; 11 and 11; 8. There were 34 boys and 28 girls, recruited from two primary schools in Kent: Herne Junior School and St Edwards Catholic Primary School. Testing was carried out at the children's schools in an area that was familiar to them. Information on the research was provided to the teachers and parents of the children and informed consent forms were signed by the parents of all of the children involved in the trials.

3.1.1 Main group

60 children aged from 7;11 to 11;8 took part in the main study. All participants in the main group were typically developing, monolingual, native speakers of English, consisting of 32 boys and 28 girls, all from the same region of England. All participants were without any identified, neuro-cognitive impairment. The children were participating in a larger study by Janke and Perovic (*sub*) of advanced grammar and primary pragmatics in atypical populations.

The children were ordered in their academic year groups. Year 3 were aged between 7;11 and 8;7, Year 4 aged between 8;9 and 9;7, Year 5 between 9;11 and 10;8 and Year 6 between 10;9 and 11;8.

Table 1: Age distribution of children

Participants	Year Group	Age Range
P 2 -- P19	3	7;11 to 8;7
P20 – P25	4	8;9 to 9;7
P26 – P42	5	9;11 to 10;8
P43 – P61	6	10;9 to 11;8

Measurement of the children's non-verbal IQ was quantified by the Kaufman Brief Intelligence Test (KBIT) and their standardised scores ranged between 69 and 138. Vocabulary capabilities were assessed by the British Picture Vocabulary Scales (BPVS)

where scores ranged between 84 and 129 and their grammar comprehension levels were measured by the Test of Reception of Grammar (TROG-2) where scores ranged between 62 and 111. These are illustrated in Table 2 below.

In order to maintain confidentiality, the children have been numbered as participants 2 to 61, and will be referred to as P2 etc. in the results and discussion.

Table 2: Averages of Standardised Scores

	Range	**Mean**	**Median**	**Mode**
KBIT	69 – 138	111.02	111.5	110
BVPS ii	84 – 129	106.7	105.5	98
TROG 2	62 – 111	94.67	97	97

3.1.2 Secondary Case Studies

Two of the boys that volunteered to be involved in the research could not be included in the main group. One child was diagnosed with ASD (A) and the other was a native Polish speaker (B) who had only been exposed to the English Language for the past three years. Both families were keen that the boys took part and, in order to complete this research as fully as possible, their data has been presented as a comparative insight into their control development as two distinct case studies, which could later be developed into a full study in atypical or bilingual populations. Their scores on the aforementioned standardised tests can be seen in Table 3.

Table 3: Secondary Study Standardised Scores

	KBIT	BVPSii	TROG2
A	97	82	62
B	107	89	90

3.2 Materials

3.2.1 Tasks

A picture selection task was used, examples of which are provided in appendix. These images were devised by Janke and Perovic (2014), and have been used in their wider research into the acquisition of control in atypical populations. Two types of control were tested: OC and NOC, and each type of control consisted of six trials in each condition. With two constructions, tested in three different conditions (no prime, weak prime and strong prime) and twenty-four fillers, the total number of trials was seventy-two. These were split into three different tasks, which were conducted within 7 to 10 days of each other

In order to be familiar to the children taking part, each picture contained images of one of the four main characters from the Harry Potter stories. The children knew the characters, however, were familiarised with their names before the task, in an introductory phase, to ensure understanding.

For each sentence, a pair of pictures were displayed simultaneously, along-side each other, labelled A or B (the sequence of pictures being randomly chosen). Each picture showed an image of two of the characters: one of each gender in order to simplify their identification during the task. The two pictures showed the same action being carried out, but the actor in each one varied between either the object or the subject of the sentence provided. As the same images could be used for testing both OC acquisition and LDC interpretation, they could be randomly mixed, without prejudice, in order to draw a comparison between the participants' responses.

There were three tasks and each child included in the analysis was tested on all three trials. There were a number of children that have had to be excluded from the results as, due to time constraints, they were not able to complete all of the tasks. As the three tasks evolved, pragmatic discourse content was added. The first task included no contextual clues and thereby established a base-line preference for interpretations for obligatory and long-distance control. Tasks 2 and 3 added contextual cues as demonstrated in the examples below.

38a) Harry told Luna to pop the balloon

38b) Luna shouted to Harry that flying upside down was a great trick.

39a) Let me tell you something about Harry. Harry told Luna to pop the balloon.

39b) Let me tell you something about Harry. Luna shouted to Harry that flying upside down was a great trick.

40a) Harry is performing a new trick. Harry takes out the pin. Harry told Luna to pop the balloon.

40b) Harry is testing his broom. Harry takes off in the air. Luna shouted to Harry that flying upside down was a great trick.

The sentences in the trials have been designed to introduce and reinforce a topic as a pragmatic prime. In Task 1 (example 38), there was no prime at all, in Task 2 a weak prime was added before the critical sentence as an introduction of a topic, whereas in Task 3, a topic was both introduced and reinforced in the preceding discourse. Examples 39 and 40 show *Harry* being introduced as the topic, and subsequently introduced and reinforced. Recall these were referred to as a weak and a strong prime, respectively. An equal number of subject topics and object topics were presented to the children in order to ascertain their preference of referent, as well as give an insight into the effect the pragmatics may have had on their interpretations. As can be seen in example 39, the introductory sentence in Task 2 is similar to that used by Lust et al (1986) "I'm going to tell you a story about X", followed by either the subject or object as the topic. Rather than use the model provided by Lust, the weak prime used in this investigation was: "Let me tell you a story about X". As the purpose of the investigation was to test the children's acquisition and development of control, it seemed circular to use the structure of control in the introductory prime. It was important that the only example of control was in the critical sentence being trialled, thus allowing for a more robust analysis of the resulting data.

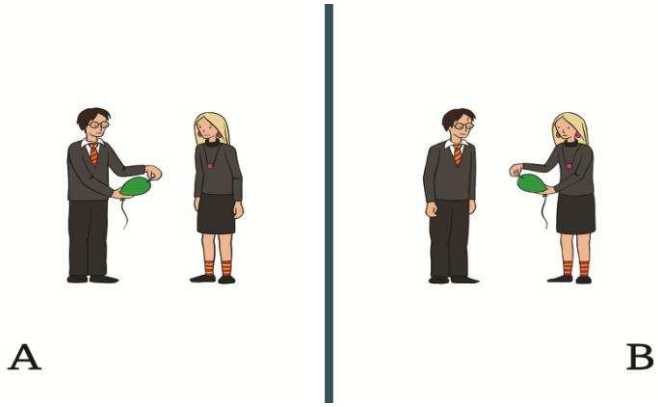
The tasks were designed to investigate how children interpreted the empty category and whether that interpretation could be altered by the addition of pragmatic content.

A minimum of a week was given between each session so as not to overwhelm the children and each set of sentences took around twenty minutes to complete. The children used a lap-top computer, on which pairs of pictures were randomly shown, along with the relevant sentence, on the screen. Simultaneously, the sentence was read aloud to the children, through ear-phones. In order to pre-empt any early guesses, the options for the participants to select their preferred picture were not made available until the sentence had been read out in full. Once the child had chosen the picture they preferred, the next trial would appear on the screen. The children were able to proceed through the study at their own pace.

3.2.2 Sentence constructions: OC

The constructions used to test the participants' acquisition of OC were object control sentences containing the verbs *ordered, persuaded* and *told.* (A complete list of these sentences is provided in the appendix.) The past tense was maintained in all of the sentences. The potential referents of the sentences were provided in the images; the correct choice of referent would be for the object of the matrix clause carrying out the action, with the foil showing the subject of the matrix clause of the sentence being the actor.

For example, in the sentence: 'Luna told Harry to pop the balloon', the correct control referent choice showed an image of Harry, the object of the matrix clause, popping the balloon (A), whilst the foil picture showed Luna, the subject of the matrix clause, popping the balloon (B).

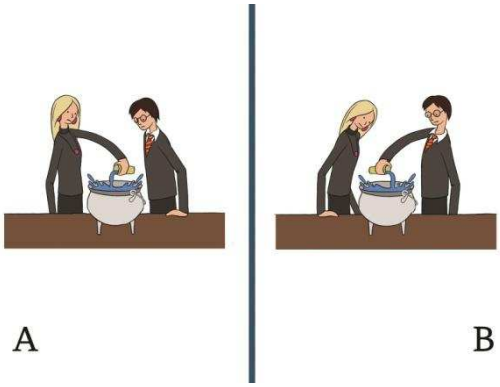


41. [Luna told Harry$_1$ [***ec***$_1$ to pop the balloon]]

3.2.3 Sentence constructions: LDC

The sentences were designed to test the children's preference of controller in LDC included an understood subject of a verbal gerund in an embedded clause and two arguments in the main clause (as shown in example 42). Recall that in LDC, the control referent is not restricted syntactically so either of the arguments might be chosen by the child. For consistency, as with the sentences used for OC, the past tense was maintained in all of the sentences and the two potential referents of the sentences were provided in the pairs of

pictures. For example**,** in the sentence: 'Harry told Luna that pouring the water quickly was a big mistake', the control referent could be either Harry or Luna.



42. [Harry$_1$ told Luna$_2$ [that **ec**$_{1/2}$ pouring the water quickly was a big mistake]]

3.2.4 Fillers

Filler sentences were included in the tasks to ensure the children understood the type of sentences constructions used, as well as a check that they understood the requirements of the tasks. Two conditions were included, one a check on the Subject-Verb-Object (SVO) syntactic order and another on an understanding of embedded clauses within a sentence (emb). The fillers were distributed across all three tasks: emb and SVO in Task 1; emb in Task 2; SVO in Task 3. Examples of all of the filler sentences are included in the appendix.

The structure of the fillers mirrored that of the control constructions, over the three tasks: in Task 1, the fillers were sentences without any pragmatic prime; in Task 2, the fillers used the weak prime, introducing a topic, "Let me tell you about X…" before the critical sentence in Task 3 where two introductory sentences were given to introduce and reinforce a topic before the final declarative. This was essential if conclusions were to be drawn on the effect of the addition of the pragmatic discourse on the control constructions. If the children could always be influenced by the addition of discourse, there would be evidence of this in the fillers.

3.3 Adult Controls

Twelve monolingual adults, from the same region as the children, completed the three tasks in order to ascertain an adult-like grammar with which to compare the children's responses. It is hoped that by considering any differences in how the children interpreted the control referent, when compared to the adults, an insight may be gained into the theory of its acquisition.

The adults were tested on the three tasks over three different days, in a place familiar to them (usually their own homes) and using the same lap-top and headphones provided for the children.

In addition, the adults were all asked to give verbal definitions of the same five (ad)verbs as requested of the children: *persuade, order, try, awkwardly, prepare*. Whilst *persuade* and *order* are being considered as control verbs in the trials, *try, awkwardly* and *prepare* are all used in the contextual additions and any misunderstanding of their meaning may have had an impact on results. This measure would not only fulfil the need to ensure that the adult participants did in fact understand the meaning of the words, but also provide data to support the coding scheme being developed and used in assessing the children's comprehension. The adults were asked for spontaneous responses to the same questions that the children were asked and key words identified from their responses are noted in Table 4. A full list of the adult responses is available in the appendix.

Table 4: Key words from adult comprehension responses

What does it mean when you persuade someone?	*convince*	*change/make mind*	*encourage*
What does it mean when you order someone?	*tell*	*command*	*instruct*
What does it mean when you try and do something?	*attempt*	*experiment*	*test*
What does it mean when you prepare something?	*get ready*	*make*	
What does it mean when you do something awkwardly?	*uncomfortable*	*clumsy*	*cack-handed*

3.4 Coding of Verbs

As noted in Section 2.5.2, in order to ensure consideration was given to the degree to which the children understood the meaning of the verbs selected for the tasks, a coding of their comprehension was required. Not only would this ensure that their interpretation of control was not influenced by a misunderstanding of the words in the construction, but also opened up a second question as to whether a lack of such semantic understanding can be linked systematically to errors in the development of complex syntactic structures, such as control. The current author devised the following task and coding scheme.

It was important that the results of the control trials could be analysed confidently in the knowledge that the children understood the words they contained. In the design of the tasks, simple vocabulary was chosen in order to support that premise. Naturally, one of the key points in the trials is based on understanding the actions of the verbs in the matrix clauses. In Task 1, the verbs in the OC sentences were *told, ordered* and *persuaded.* Whilst the meaning of *told* was believed accessible to all of the primary school children, this was not necessarily the case with *ordered* and *persuaded.* With the addition of the pragmatic cues in Task 3, three more possible complications were identified: *try, prepare* and *awkwardly.*

So, in order to ascertain the children's knowledge of these verbs a simple question was formed. As can seen in examples 43a to 43e, the infinitival forms were not used so as not to assume the children's understanding of the construct yet to be tested.

43a) What does it mean when you persuade someone?

43b) What does it mean when you order someone?

43c) What does it mean when you try and do something?

43d) What does it mean when you prepare something?

43e) What does it mean when you do something awkwardly?

The children's responses were recorded and initially were graded against definitions from the Cambridge Dictionary (Table 4) using the following key:

0 - No comprehension of meaning

1 - Some understanding of meaning

2 - Proficient comprehension of meaning

Table 4: Cambridge dictionary definitions used for initial coding

Persuade	*To make someone do or believe something by giving them a good reason to do it or by talking to that person and making them believe it.*
Order	*If a person in authority orders someone to do something, or orders something to be done, they tell someone to do it.*
Try	*To attempt to do something.*
Prepare	*To make or get something or someone ready for something that will happen in the future; to expect that something will happen and to be ready for it.*
Awkwardly	*Moving in a way that is not natural, relaxed, or attractive; with difficulty, in a way that is to deal with, use, or do.*

Due to the spontaneous nature of the responses required from the children, it was unlikely that, even if they showed a proficient understanding of the verbs, they would give dictionary definitions, which would result in an inaccurate coding. To that end, the adults in the control group were asked the same comprehension questions as those that were asked of the children, as noted in example 34. Key words from these adult responses were provided to the rater (see Table 4), along-side the dictionary definitions, to exemplify the heterogeneous nature of the responses. As spontaneous answers, these adult responses did not necessarily tally with the dictionary definition but could be assumed to be coded as 2 (proficient comprehension) by the very nature of being part of an adult grammar.

To further aid the accuracy of the data provided to the rater, a pilot scheme was undertaken, the details of which follow.

3.4.1 Pilot

In order to confirm the inter-rater reliability of the coding system, a sample of responses was taken from a number of participants in a pilot scheme who were asked the same comprehension questions planned for the children in the main task. The intention was that this would ensure a fair and equitable base on which to gauge the level of semantic understanding of those taking part in the trials. Definitions of the verbs most likely to be misunderstood in the sentence constructions were sought from responders aged from 4 to adult in order to provide examples for each of codes: 0 for no comprehension of meaning; 1 for some understanding of meaning; 2 for proficient comprehension of meaning. Additionally, due to the likely colloquial responses from the children participating in the tasks, a pilot exercise was undertaken to provide realistic examples of likely or expected informal responses for the coding, along-side the dictionary definition. It was hoped that by coding

these pilot responses, along-side the dictionary definitions, a database of possible examples for '0' (none), '1' (some), and '2' (proficient) responses could be provided to an independent rater. In addition to the twelve adult participants, five children aged between 5;3 and 12;7 were asked for their definitions of the five verbs. The responses were coded, as shown in Table 5 and any additional key words from those responses coded as a '2' have been added to the key words provided by the adults, in table 6 below.

Table 5: Responses and codes from pilot group

F - 5;3	**RESPONSE**	**CODE**
PERSUADE	To force them in a way to make them do something	1
ORDER	Telling them to do it	2
TRY	You might try to explain something or you might try to spell a word	1
PREPARE	Sort of getting ready	2
AWKWARDLY	Not sure	0
F - 10;11		
PERSUADE	Try to get them on your side and agree with you	1
ORDER	Tell them what to do	2
TRY	Attempt to do it	2
PREPARE	If you're leading up to a big event you need to get organised and sort things out	2
AWKWARDLY	Seems uncomfortable	2
M - 7;5		
PERSUADE	Trying to get them to do something you want, like bribing them so they do it	2
ORDER	They have to do what you tell them to do	2
TRY	Give it a go	2
PREPARE	Get ready for something to happen	2
AWKWARDLY	Doing it weirdly	2
M - 11;6		
PERSUADE	You sort of convince them to do what you want them to	2
ORDER	Tell them bluntly	2
TRY	Just give it a go	2
PREPARE	Get it all ready	2
AWKWARDLY	Looks a bit odd and uncomfortable; there are better ways to do it.	2
F - 12;7		
PERSUADE	Get them to change their mind to do what you want them to	2
ORDER	Give them a command	2
TRY	Make an attempt at it	2
PREPARE	Get yourself organised for a party or something	2
AWKWARDLY	Seems a weird way to do it	2

Table 6: Key words from pilot and adult responses

PERSUADE	*convince*	*change/make up mind*	*encourage*	
ORDER	*tell*	*command*	*instruct*	
TRY	*attempt*	*experiment*	*Test*	*give it a go*
PREPARE	*get ready*	*make*	*organised*	
AWKWARDLY	*uncomfortable*	*clumsy*	*cack-handed*	*weird*

The ages of the respondents were not disclosed to the rater; the spread was simply to provide real examples of responses that would fit each of the criteria being used. This should give a consistency in the decisions being made by different raters using the scheme. A list of the coding for all of the participants in the trial is available in the appendix.

3.4.2 Final coding scheme

Given the considerations noted above, it was expected that this scheme would ensure an unbiased coding, not based on any one, autonomous, interpretation of a child's utterance.

All of the children's responses were given to an independent reader who had no detailed knowledge of the tasks being carried out or the participants involved. They were asked to read each of the answers given by the children, and using the data provided by the pilot, along-side the dictionary definition, rate each response using the above key (0, 1 or 2).

Initial thoughts on those children who gave responses rated as 0, or gave numerous responses rated as 1 was to exclude them from the study. However, on consideration, it seemed that this data was as valuable as that provided by respondents with perfect 2 ratings. This data set would give a unique opportunity to compare those children who made vocabulary errors and compare them with those that made syntactic errors in order to consider if one were impacting on the other. It would also provide evidence of understanding (or not) of the intentions in the pragmatic content added to the main declaratives. With the aim of this paper being to investigate how children make referent choices in control constructions, explorations could now be made by directly linking those referent choices to their comprehension of vocabulary and pragmatic understanding.

Chapter 4: Results

The children were aged from 7;11 to 11;8, with each group divided into their academic year groups, as outlined in Section 3.1.1. In the following sections, the initial results are presented as an overview of the number of children who chose the object as the control referent in each of the three tasks, across both constructions. Recall that in OC there is an expected correct response, namely the object, whilst in LDC either the subject or the object may be chosen as the co-referent for the empty category. A synopsis of the errors made in OC is given in Table 7, narrowed down to individual participants in Tables 8 and 9 in order to analyse any patterns or causes of the errors. Section 4.3, Charts 9 to 11, show the preferred referent choice in LDC, over all three tasks, which are subsequently broken down to individual responses in order to compare with OC in Tables 11 and 12. The development of the referent choices by age groups in LDC is provided in Charts 13 to16, whilst the adult responses are given in Chart 17.

4.1 Overview of Trends Evident in All Tasks

4.1.1 Summary of Task 1

Task 1 contained no introductory topic. For the OC constructions, there were six trials. With 60 participants making responses, this resulted in 360 data points. Of the 360 points, 327 resulted in the correct object choices, whilst 33 resulted in incorrect subject responses, shown in Chart 1. For the LDC constructions, there were also six trials, and therefore 360 data points. Of the 360 points, 268 responses showed a preference for the object as the LDC referent, whilst 92 responses were for the subject, as illustrated in Chart 2.

Chart 1: Obligatory control referents in Task 1

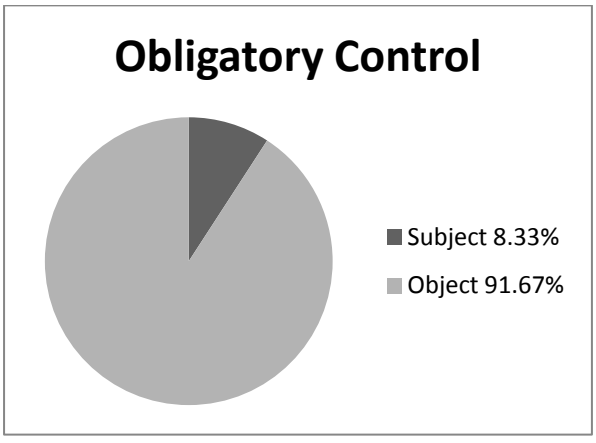
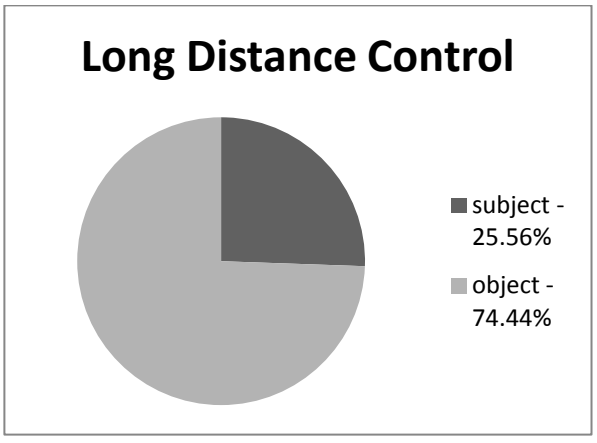
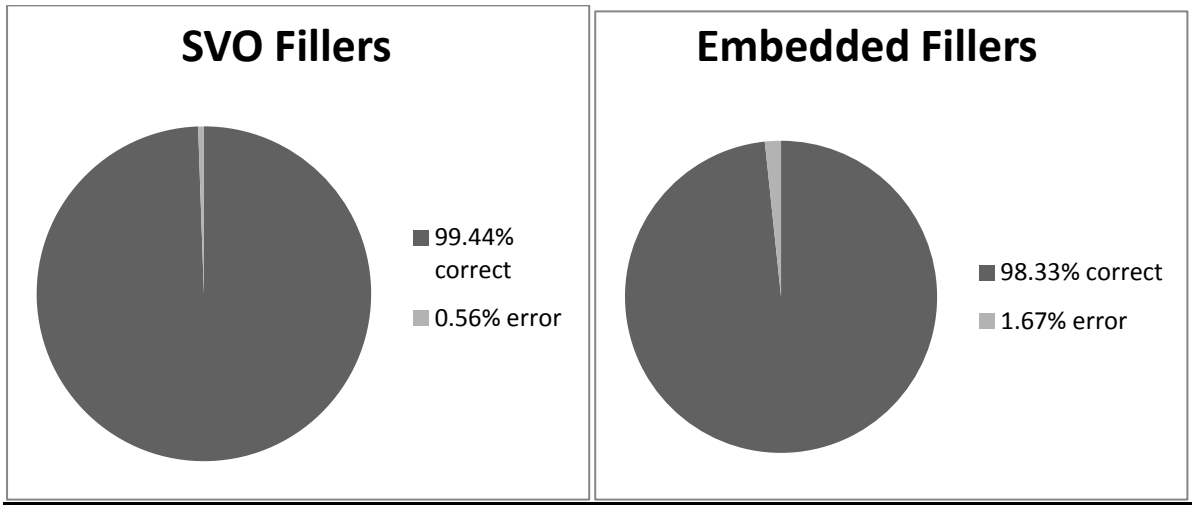


Chart 2: Non-obligatory control referents in Task 1



Finally, in Task 1, there were 12 filler constructions (6 SVO and 6 embedded) with 60 participants making responses, resulting in 720 points. Of those 720 points, 712 were correct responses, which left 8 errors. 2 of these errors were made in the SVO fillers and 6 were made in the embedded construction fillers (see Chart 3).

Chart 3: Filler argument choices in Task 1

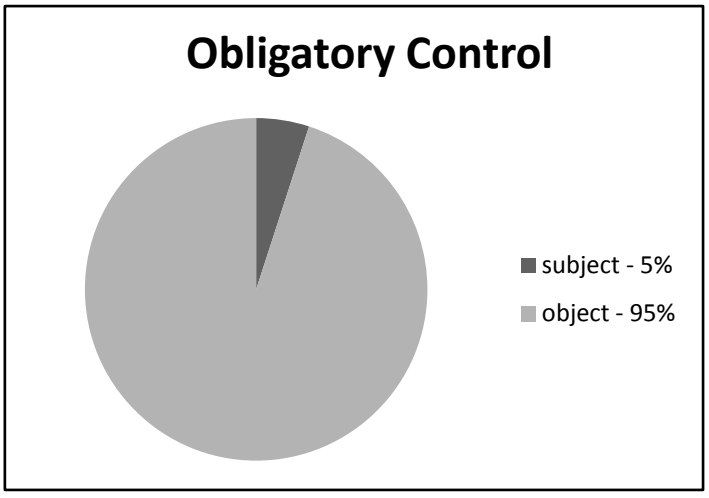


4.1.2 Summary of Task 2

Task 2 contained a weak prime that introduced a topic.

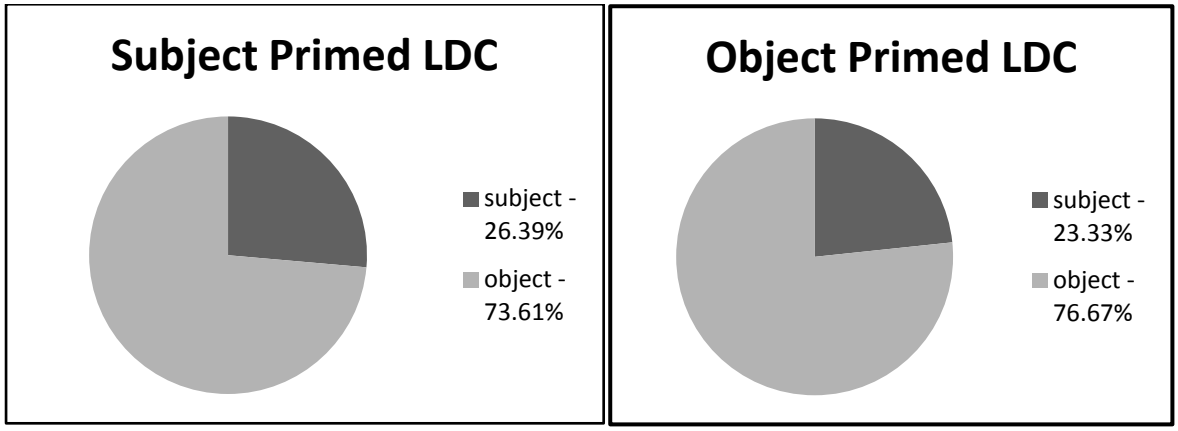
As in Task 1, the first part of this task consisted of 6 OC constructions. Of the 360 data points, 342 responses were the object as the OC referent, whilst 18 responses were for the subject as co-referent, illustrated in Chart 4.

Chart 4: Obligatory control referents in Task 2



In the second part of task 2, 6 of the topics targeted the subject and 6 targeted the object, in LDC constructions. Chart 6 shows the nature of any shift in responses in the trials where pragmatic cues were added, and indicates which argument the topic has primed. When subject primed, 95 responses showed a preference for the subject as control referent, with 265 responses being for the object. When object primed, 84 responses of the 360 still showed a preference for subject as referent with 276 data points indicating a choice of object as the control referent.

Chart 5: Non-obligatory primed control referents in Task 2



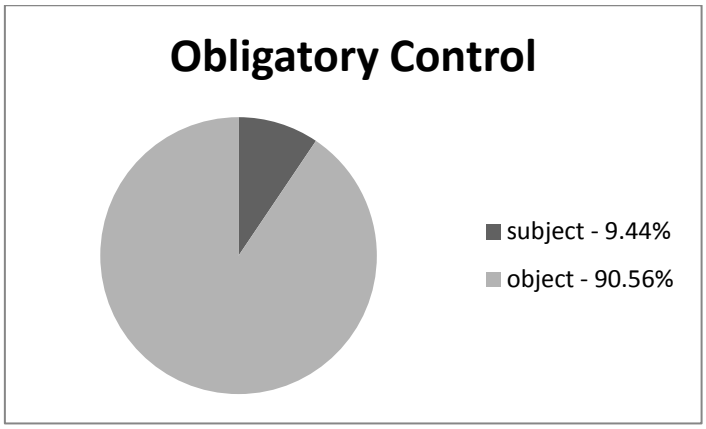
Finally, in Task 2 there were 6 filler constructions. There were no errors recorded in the embedded construction fillers of Task 2.

4.1.3 Summary of Task 3

Task 3 contained a strong prime that introduced and then reinforced a topic.

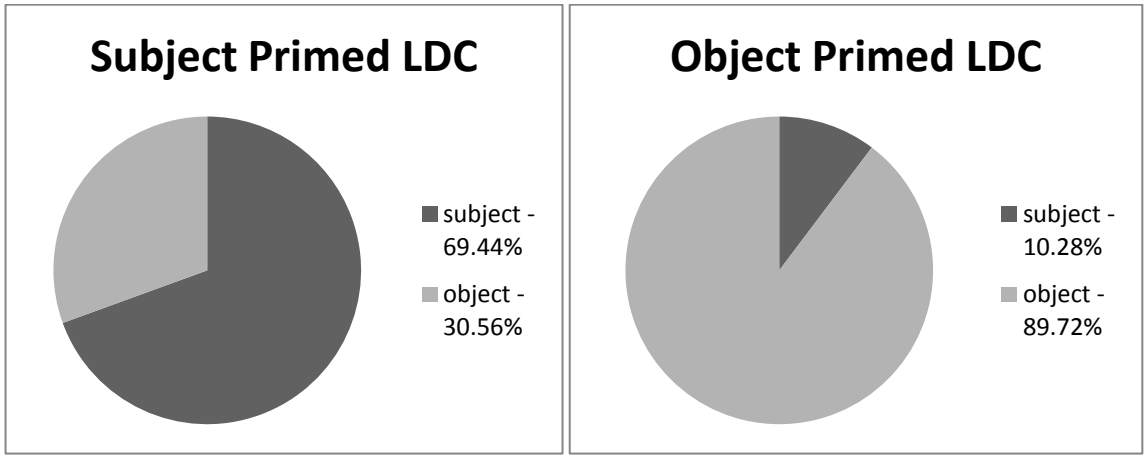
In the OC trials of Task 3, from a total 360 answers 326 resulted in correct responses, where the participants' choice was for the object as the OC referent, whilst 34 resulted in subject responses.

Chart 6: Obligatory control referents in Task



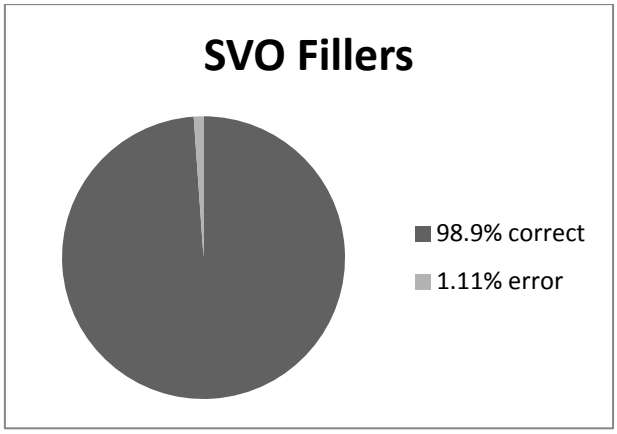
As in Task 2, half of the LDC sentence constructions were pragmatically primed for the subject as control referent and half for the object. On hearing the strong prime, 270 responses were for the subject as control referent, with 110 data points still indicating participants' response preferences for the object. When cued with the strong object prime, only 37 the 360 points retained the subject as referent with 323 responses indicating a choice of object as the control referent.

Chart 7: Non-obligatory primed control referents in Task 3



Finally, in Task 3, there were six SVO filler constructions. 348 points resulted in correct responses, whilst 12 resulted in errors.

Chart 8: Filler argument choices in Task 3



4.2 Examination of Errors in Obligatory Control

As predicted, the number of children that correctly chose the object as the co-referent in OC was over 90% in each of the three tasks (Task 1: 91.67%; Task 2: 95%; Task 3: 90.56%).

Nonetheless, some inaccuracies did occur in OC. In Task 1, 19 children made errors (31.67%), incorrectly identifying the subject as the control referent at least once. Of those 19, 12 children made only 1 mistake in the six constructions considered, with 7 children in Task 1 making multiple errors (11.67%). Some improvement was shown between Tasks 1 and 2, with only 8 (13.33%) children incorrectly choosing the subject as referent: 4 (6.67%) of those making multiple errors and 4 making only one error. As more pragmatic content was added, the total number of children in Task 3 choosing the subject in error rose again to 12 (20%), with the number of those making multiple errors rising back to 7 (11.67%), equal to Task 1.

Table 7: Overview of OC errors

Task 1 – One OC Error Only	**Task 1 – Multiple OC Errors**
P3,P4,P6,P10,P11,P15,P25,P32,P39,P40,P42,P45,	*P2,P5,P12,P14,P24,P49,P56*
Task 2 – One OC Error Only	**Task 2 – Multiple OC Errors**
P14,P18,P25,P53,	*P2,P24,P56,P57*
Task 3 – One OC Error Only	**Task 3 – Multiple OC Errors**
P2,P8,P15,P34,P44,	*P5,P10,P24,P38,P47,P56,P57*

It is vital to note in which tasks these errors took place, if a conclusion is to be drawn as to why they may have occurred, thus Table 8 shows where the children made just a single error in their choice of referent for OC and, conversely, Table 9 shows the distribution of the OC errors made by the children who incorrectly chose the subject on more than one occasion. As can be seen in Table 8, 9 of the 13 children (69.23%) that had made only one single error over all three tasks, did so in Task 1, and did not repeat the same error in Tasks 2 and 3. 1 child (7.69%) correctly identified the object as referent in Task 1, but not in Task 2 when given the addition of the simple contextual prime "Let me tell you…". whilst, 3 children (23.08%) correctly identified the object as referent in Task 1 but not in Task 3, when given the addition of the more comprehensive prime.

Table 8: Distribution of single OC errors

Participant	Task 1	Task 2	Task 3
P3: 8;4	X		
P4: 8;5	X		
P6: 8;7	X		
P8: 8;4			X
P11: 8;2	X		
P18: 8;6		X	
P32: 10;4	X		
P34: 10;1			X
P39: 10;9	X		
P40: 9;11	X		
P42: 10;6	X		
P44: 11;3			X
P45: 11;0	X		

Table 9: Distribution of multiple OC errors

Participant	Task 1	Task 2	Task 3
P2: 8;0	XXXX	XXX	X
P5: 8;6	XXX		XXX
P10: 8;2	X		XXXX
P12: 8;2	XXXX		

P14: 8;5	XX	X	
P15: 8;2	X		X
P24: 9;8	XXX	XXXX	XXXX
P25: 8;11	X	X	
P38: 10;9			XXXXX
P47: 11;5			XXXX
P49: 11;6	XX		
P56: 10;11	XXX	XXXX	XXXX
P57: 11;1		XXX	XXXXX

Similar to the results of single errors, the majority of children making multiple OC errors did so in the initial constructions of Task 1, however, all but one of those also went on to make some errors in the next two tasks. The results in Table 9 show that 10 of the 13 children (76.92%) making multiple errors did so in Task 1, whilst 1 child (7.69%) correctly identified the object as the co-referent in Task 1, but not in Task 2 or Task 3, whereas, 2 children (15.39%) correctly identified the object as the referent for the ***ec*** in Tasks 1 and 2 but made multiple errors in Task 3, when faced with the more robust pragmatic cues.

4.2.1 OC errors in relation to standardised tests, fillers & verb comprehension

As has been reported in Table 9 above, a number of participants were making multiple mistakes in one task, or consistently making errors across the individual tasks; these were not individual inaccuracies that could be explained away as 'human error'.

4.2.1i OC errors in relation to standardised scores

All of the children that participated in the research completed standardised tests that measured verbal and non-verbal abilities. Hence, a comparison can be made between the results of standardised grammar (TROG-2), vocabulary (BPVS) and non-verbal tasks (KBIT) (outlined in Section 2.5.1.) where the standardised average is 100. These results can be found in Table10.

Table 10: Comparison of OC errors & standardised tests

Participant	Task 1	Task 2	Task 3	TROG	BPVS	KBIT
P2	xxxx	xxx	x	81	102	102
P5	xxx		xxx	81	99	124
P10	x		xxxx	95	98	110
P12	xxxx			95	107	88
P14	xx	x		104	98	92
P15	x		x	62	98	96
P24	xxx	xxxx	xxxx	99	115	104
P25	x	x		81	98	76
P38			xxxxx	92	103	117
P47			xxxx	102	105	121
P49	xx			92	104	116
P56	xxx	xxxx	xxxx	83	115	120
P57		xxx	xxxxx	102	111	119

On making comparisons with the standardised tests in Table 10, it can be seen that: 76.92% of children making multiple OC errors scored below 100 in TROG-2, with 38.46% of children scoring less than 90; 38.46% of children making multiple OC errors scored below 100 in BPVS, with none scoring less than 90; 30.78% of children making multiple OC errors scored below 100 in KBIT, with 15.38% scoring less than 90. Notably, 53.85% scored 110 or above.

4.2.1ii OC errors in relation to vocabulary codes

Uniquely in this form of research, a separate investigation was made into these same participants' understanding of the verbs used in the sentence constructions. A comparison can be drawn between the specific construction in which errors were made and the lexical semantic understanding of participants, using the coding scheme established in Section 3.3. These results are given in Table 11.

Table 11: Comparison of OC errors & vocabulary comprehension

Participant	T ask	Task 2	Task 3	Persuade	Order	Try	Awkwardly	Prepare
P2	xxxx	xxx	x	2	2	2	1	2
P5	xxx		xxx	2	2	2	2	2
P10	x		xxxx	1	2	2	1	2
P12	xxxx			2	2	2	2	2
P14	xx	x		2	2	2	2	2
P15	x		x	2	2	2	0	2
P24	xxx	xxxx	xxxx	2	2	2	2	2
P25	x	x		2	2	2	2	2
P38			xxxxx	1	2	2	2	2
P47			xxxx	1	2	2	2	2
P49	xx			1	1	2	2	1
P56	xxx	xxxx	xxxx	2	2	2	2	2
P57		xxx	xxxxx	2	2	2	2	2

4.2.1iii OC errors in relation to fillers

Additionally, in order to ascertain the possible causes of such errors in OC, a comparison can be made to the errors that participants made in the filler constructions which would establish whether they were familiar with the basic syntactic form of each construction, as well as provide evidence of any impact the pragmatic cues may have had on the children's understanding of the fillers. The results are shown in Table 12. In order to identify which sentence construction may be causing difficulties, each error has been numbered in line with the full list of sentences available in the appendix.

Table 12: Comparison of OC & filler errors

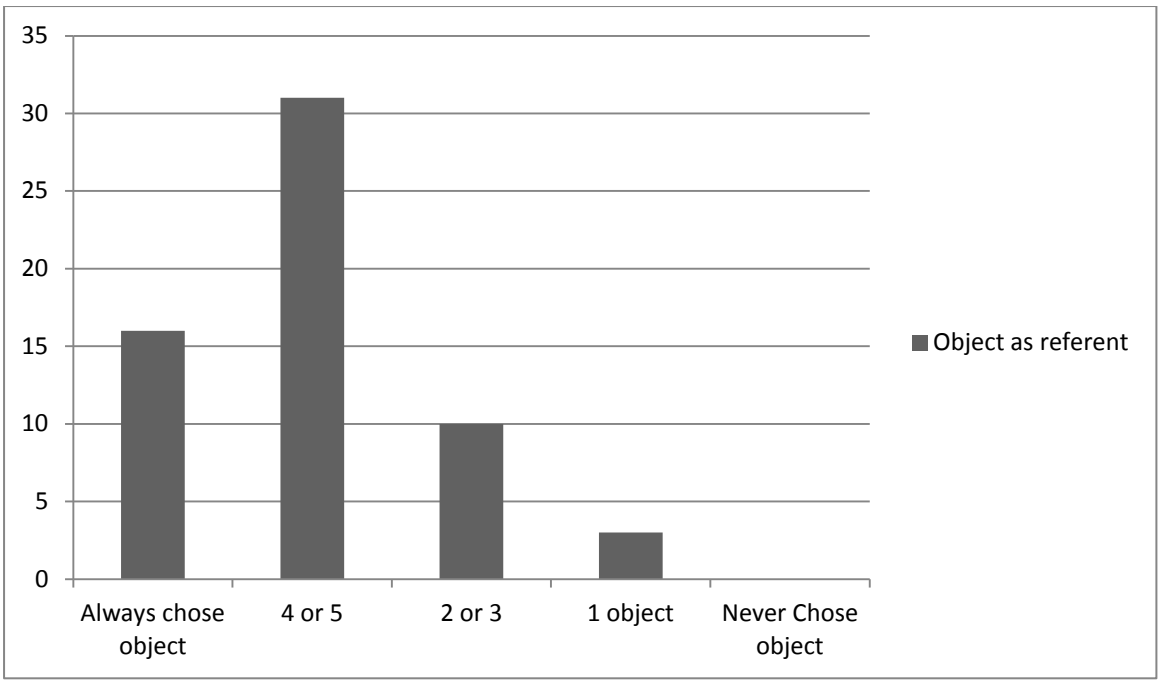
Participant	Task 1 errors	Task 2 Errors	Task 3 errors	Filler T1 Emb. Errors	Filler T1 SVO errors	Filler T2 Emb. Errors	Filler T3 SVO errors
P2	xxxx	xxx	x				29
P5	xxx		xxx				
P10	x		xxxx				
P12	xxxx						
P14	xx	x					
P15	x		x				
P24	xxx	xxxx	xxxx				
P25	x	x		29	41,42		26,30
P38			xxxxx				
P47			xxxx				
P49	xx						
P56	xxx	xxxx	xxxx				
P57		xxx	xxxxx				28,29

4.3 Examination of Responses in Long Distance Control

Unlike in OC, the option to use the subject as the control referent in LDC was a choice to be made by the participants, as opposed to a grammatical error. In Task 1, the initial six constructions offered the children free choice, without bias or prime, towards either a subject or object control referent. However, the contextual additions in Task 2 and 3 were designed to prompt the participants to either one or other of the verb arguments.

In Task 1, 16 children (26.67%) always chose the object as the referent and the majority, 31 (51.66%) showed a strong preference for the object, choosing it as the referent in four or five of the six trials. 3 children (5%) chose the object only once, showing a strong preference for the subject and 10 participants (16.67%) switched between the object and subject as their referent choice, as can be seen in Chart 11. The graph shows the distribution of the 60 children taking part in the trials, and how many chose the object as their preferred co-referent.

Chart 9; Object as LDC referent choice in Task 1



A topic was introduced as a weak prime in Task 2 (*Let me tell you something about…*) to see if the number that had a preference for the object as the co-referent changed as a function of this introduced topic. In Task 2, six of the trials were primed with pragmatic cues towards the subject. Here, 19 children (31.67%) always chose the object as the referent whilst a smaller majority, of 23 (38.34%) still showed a preference for the object, choosing it as the referent in four or five of the six trials. 2 children (3.33%) chose the object only once, showing a stronger preference for the subject, with 1 participant (1.66%) never choosing the object when primed for the subject in Task 2, whilst a further 15 participants (25%) switched between the object and subject as their referent choice. A second set of six sentences were pragmatically primed for the object and 23 children (38.33%) always chose the object as the referent, whilst 22 (36.67%) showed a preference for the object choosing it as the referent in four or five of the six trials. 15 participants (25%) switched between the object and subject as their referent choice in the second half of Task 2. A comparison of these results can be seen in Chart 10, which shows how many of the 60 children chose the object as their preferred co-referent, when primed for either the subject or object.

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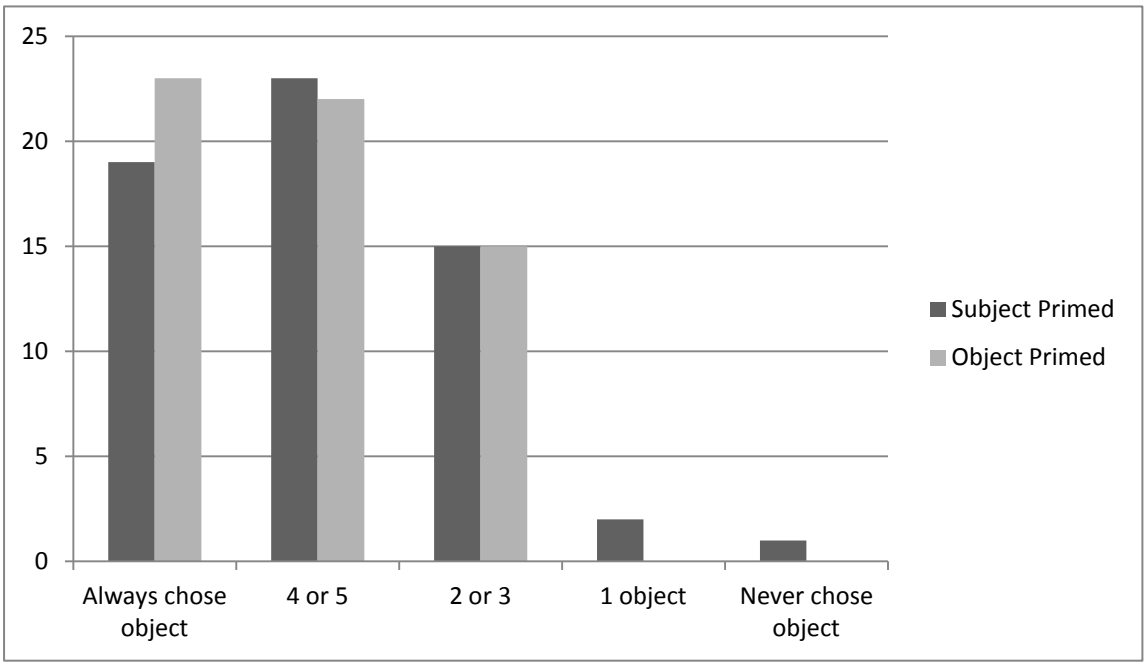
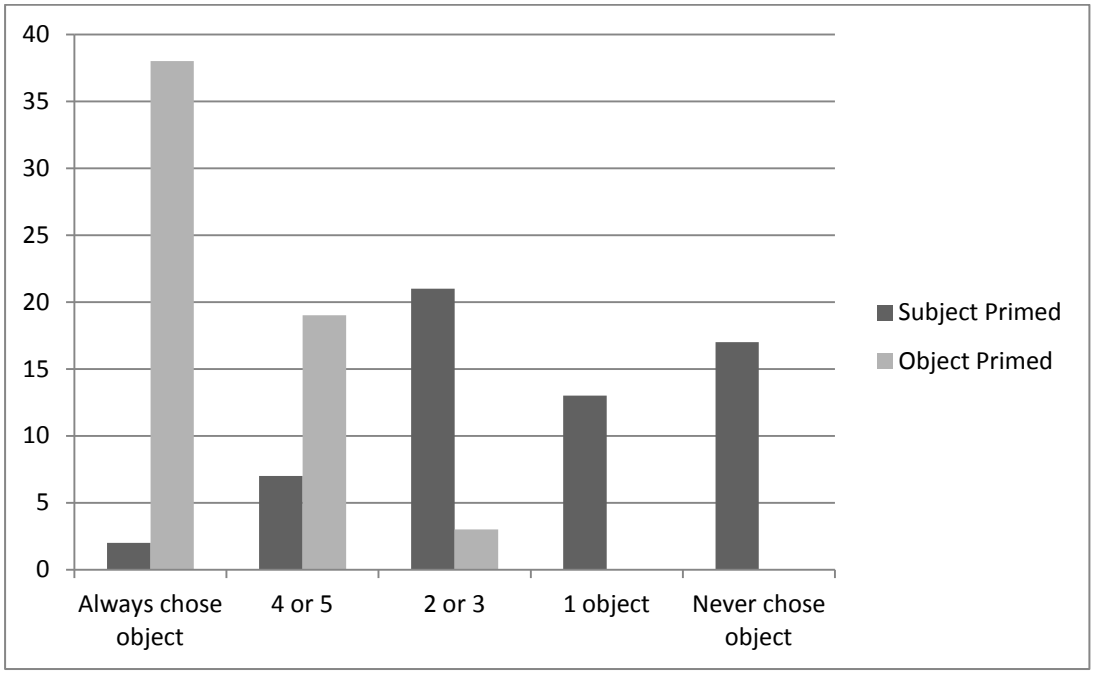
Chart 10; Object as LDC referent choice in Task 2



A stronger level of topic was added in Task 3, made up of two introductory sentences focusing on either the subject or object, before the final infinitival being trialled, to test if the addition of more significant context would influence the results seen thus far. As with Task 2, six of the trials were primed with a topic that cued the subject and six the object. In the subject-primed trials, 2 children (3.33%) still always chose the object as the referent whilst 7 (11.67%) retained a preference for the object, choosing it as the referent in four or five of the six trials. 13 children (21.67%) chose the object only once, showing a strong preference for the subject, with 17 participants (28.33%) never choosing the object when primed for the subject in Task 3. 21 participants (35%) switched between the object and subject as their referent choice. A further 6 sentences, using opposing pragmatic cues, were primed for the object where 38 children (63.33%) always chose the object as the referent whilst a further 19 (31.67%) showed a preference for the object, choosing it as the referent in four or five of the six trials. Only 3 participants (5%) switched between the object and subject as their referent choice in the second half of Task 3 and none of the children chose the subject more than four times when primed for the object in this task. A comparison of the primed results can be seen in Chart 13, which shows how many of the 60 children chose the object as their preferred co-referent, when provided with a strong cue for either subject or object.

Chart 11; Object as LDC referent choice in Task 3



In order to consider any patterns or anomalies in the individual responses made by the children, Table 11 shows how these results varied for each of the individual participants, over the three tasks, as contextual primes were added.

Table 11: Individual participant's LDC referent choice

LDC Task 1 No Prime	**Always chose object**	**4 to 5 objects**	**2 to 3 objects**	**1 object**	**Never chose object**
	18,20,21,22,26,29, 30,36,37,39,47,50,51, 52,59,60	4,6,7,8,9,11,13,14, 15,16,17,19,23,24, 27,28,31,32,35,40, 41,43,44,45,46,48, 49,53,55,57,58,	3,5,10,25,33,34,38, 42,56,61	2,12,54	
LDC Task 2: Subject- Primed	**Always chose object**	**4 to 5 objects**	**2 to 3 objects**	**1 object**	**Never chose object**
	5,9,11,17,20,21,29,30 ,31,36,37,40,41,47,48 ,30,51,59,60	3,4,7,15,16,18,19,22 ,23,24,25,26,27,28, 33,34,39,42,43,45, 52,55,58	6,8,10,12,13,14,32, 38,35,46,53,54,56, 57,61,	44,49	2

LDC Task 2: Object –Primed	Always chose object	4 to 5 objects	2 to 3 objects	1 object	Never chose object
	3.5,9,11,15,17,21, 22,27,29,30,31,36,43, 45,47,48,50,51,55,58, 59,60	4,8,12,13,16,18, 20,23,24,25,26,28,3 3,37,39,40,41, 49,53,57,61	2,6,7,10,14,19,32,34 ,35,38,42,44,46,54, 56		
LDC Task 3: Subject- Primed	**Always chose object**	**4 to 5 objects**	**2 to 3 objects**	**1 object**	**Never chose object**
	20,50,	11,17,18,21,29,41, 43	4,6,8,9,12,14,15,16, 19,25,27,30,34,37, 38,40,42,46,49,55, 60	3,5,13,22,,28,31,32, 33,36,39,44,56, 59,	2,7,10,23,24,26, 35,45,47,48,51, 52,53,54,57, 58,61
LDC Task 3: Object –Primed	**Always chose object**	**4 to 5 objects**	**2 to 3 objects**	**1 object**	**Never chose object**
	3,5,7,9,11,15,16,18, 21,22,23,24,26,28,29, 30,31,33,34,35,36,39, 42,45,46,47,48,50,51, 52,53,55,56,57,58,59, 60,61	2,4,6,10,12,13,14,17 ,9,20,27,32,37,38, 40,41,43,44,49	8,25,54		

4.3.1 Parallels of subject responses in strong subject-primed LDC and OC

In Section 4.2, results showed that when the strong pragmatic cue was used as a prime for the subject in OC, a number of children ignored the correct obligatory control referent and switched their preference to the subject as the co-referent of ***ec.*** As a parallel, Table 12 compares the results of the same pragmatic prime used in Task 3 for LDC to see if there is a link to the children who made the errors in OC.

Table 12: Parallels in subject primed referents in LDC, and OC errors

LDC Task 3: Subject primed	**0 subject**	**1 to 2 subjects**	**3 to 4 subjects**	**5 to 6 subjects**
Participants	20,43,50,	11,17,18,21,29,41	4,6,8,9,12,14,15,16, 19,25,27,30,34,37, 38,40,42,46,49,55, 60	2,3,5,7,10,13,22,23, 24,26,28,31,32,33, 35,36,39,44,45,47,4 8,51,52,53,54,56,57, 58,59,61

OC Task 3: Subject primed	**0 subject**	**1 to 2 errors**	**3 to 4 errors**	**5 to 6 errors**
Participants	3,4,6,7,9,11,12,13,14, 16,17,18,19,20,21,22, 23,25,26,27,28,29,30, 31,32,33,35,36,37,39, 40,41,42,43,45,46,48, 49,50,51,52,53,54,55, 58,59,60,61	2,8,15,34,44	5,10,24,47,56	38,57

There appears to be a link between the children who were swayed away from the obligatory referent in OC to those that were more often swayed by the subject prime in LDC, despite original preferences for the object.

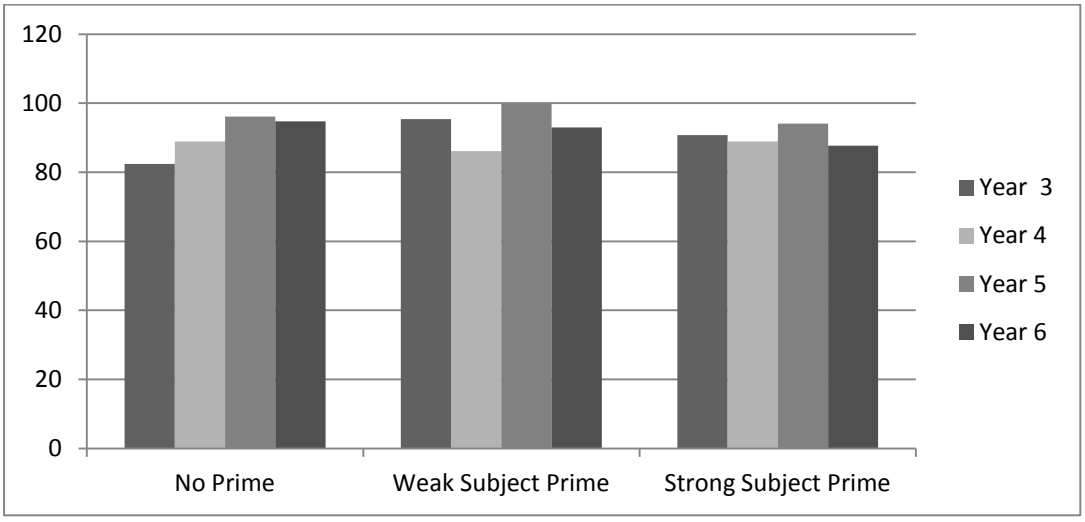
4.4 Results of Responses as a Developmental Path

Recall that the children were divided into their academic year groups, from Year 3 to Year 6, in order that their responses could be considered with reference to their age group. There were 18 children in Year 3, 6 in Year 4, 17 in Year 5 and 19 in Year 6.

4.4.1 Results of OC responses by age group

Chart 12 shows the percentage of children in each age group that correctly identified the object as the OC referent against those that gave subject responses.

Chart 12: Percentage of correct responses in OC Tasks



4.4.2 Results of LDC responses by age group

Charts 13 to 16 give a visual breakdown of the development in the referent choice of each year group. For example, the object responses in the strong subject prime fell from 37.04% in Year 3, to 32.35% in Year 5 and again to 20.18% in Year 6, though this is still notably higher than the 5.56% of the same responses in the adult grammar (see Chart 19). There were fewer participants in the Year 4 age group which may well have had an impact on these tiered results, particularly as two of these children are part of the group that permitted the subject as referent in error in OC (detailed further in the next section).

Chart 13: Year 3 responses to LDC Tasks

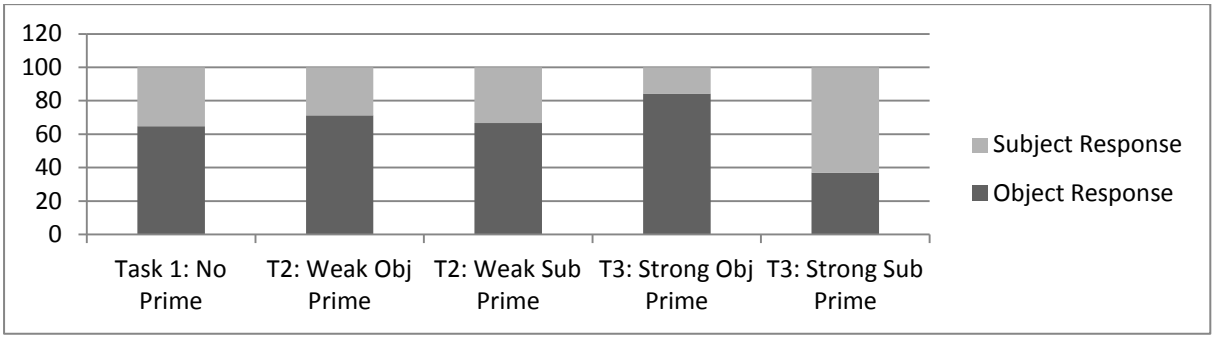


Chart 14: Year 4 responses to LDC Tasks

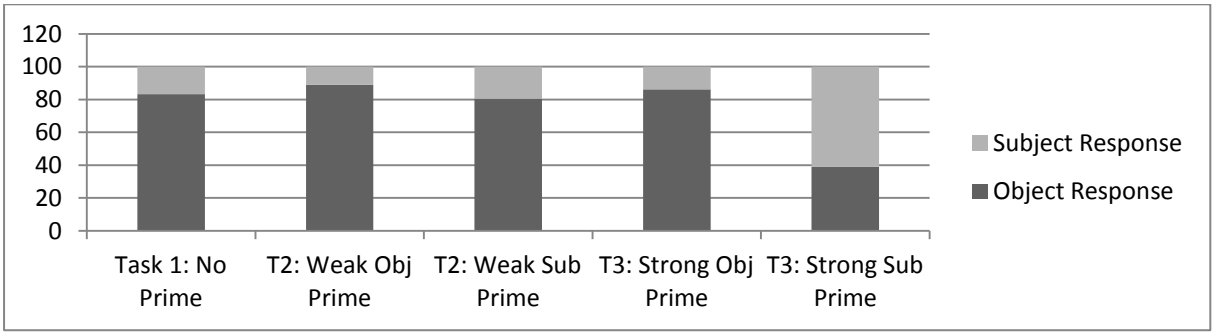


Chart 15: Year 5 responses to LDC Tasks

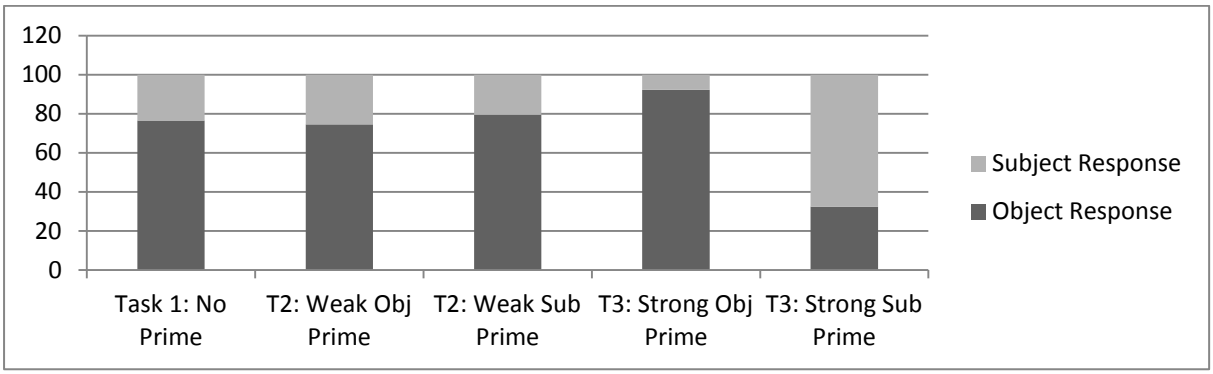
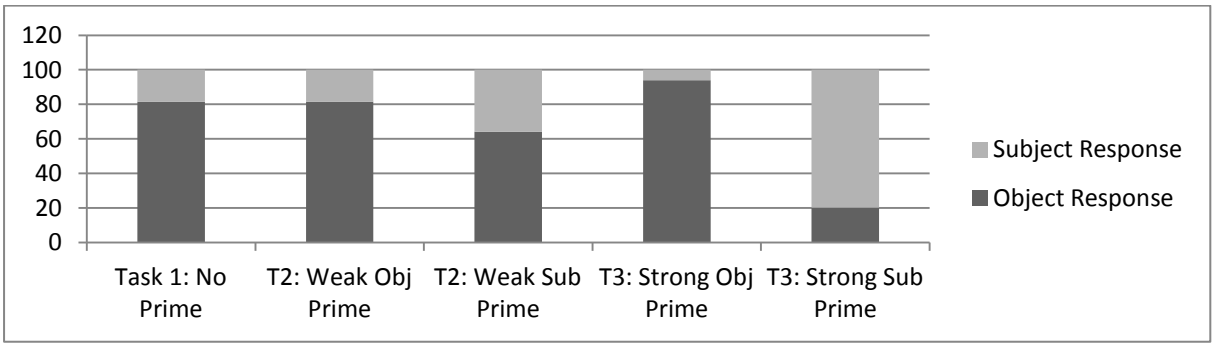


Chart 16: Year 6 responses to LDC Tasks

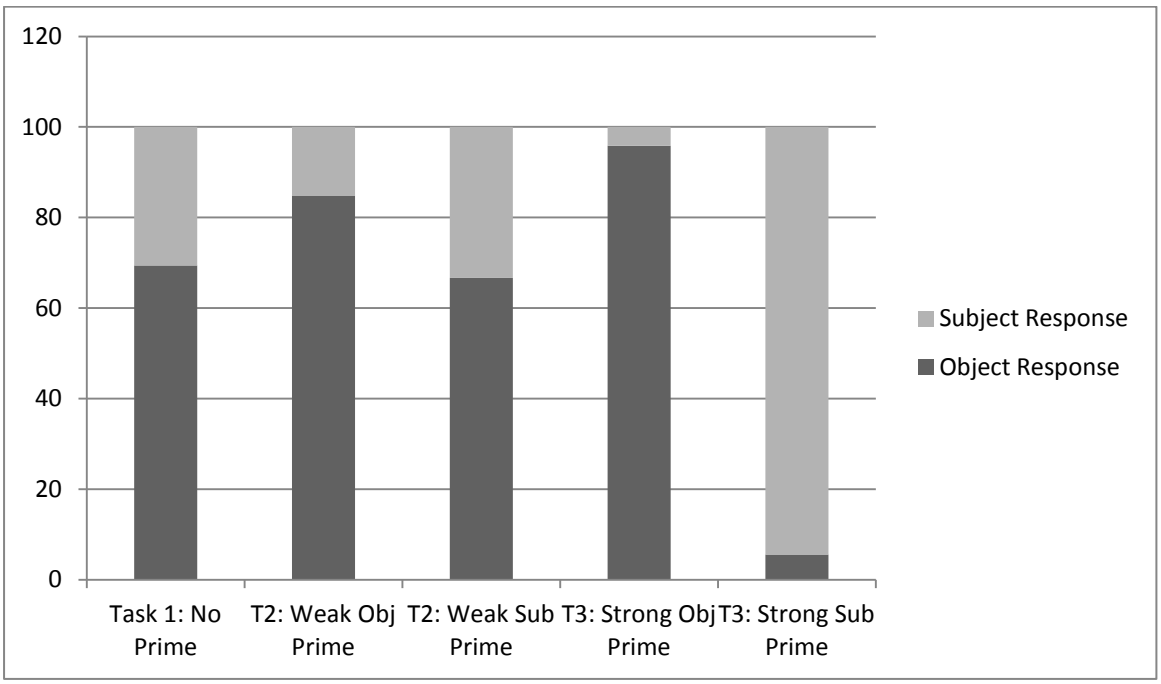


4.5 Results of the Adult Control Group

There were twelve adults participating in the three tasks and the number of constructions considered was the same as had been previously completed by the children, resulting in 72 data points for OC in each of the three tasks. For the trials of LDC, there were 72 points in Task 1, and 144 points in Tasks 2 and 3 (half of those primed for subject and half for object). As would be expected in a structurally governed construct, the adults overwhelmingly identified the object as the correct referent in OC. 100% of the 72 points in Task 1 and 71 (92.2%) in Tasks 2 and 3. Of note is that the single OC error made in Tasks 2 and 3 were not made by the same participant.

In the LDC constructs in Task 1, of the 72 data points, 69.44% chose the object, whilst 30.56 preferred the subject as the co-referent. In Task 2, of the 72 object primed trials 84.72% were object responses whilst 15.27% chose the subject. In contrast, when subject primed, 66.67% were object responses and 33.33% were subject responses. In Task 3, when cued with the strong prime, 95.83% of the object primed points were object responses, with 4.6% choosing the subject, whilst, when provided with the strong subject prime, 5.56% of the trials were object responses and 94.44% preferred the subject. These referent interpretations can be seen in Chart 17.

Chart 17: Adult Responses to LDC Tasks



4.6 Results of the Two Case Studies

Two of the participants in the study were not typically developing, native, English language speakers and their results have not been included in the tables above. Participant A was diagnosed with autism spectrum disorder (ASD); B was a Polish native speaker who has only been exposed to English for the last three years. Neither of these children made any errors in assigning an object referent in OC.

Table 13: Standardised tasks & vocabulary comprehension in case studies

	Participant **A**	*Participant* **B**
TROG-2	62	90
BPVS	82	89
KBIT	97	107
Persuade	0	1
Order	0	2
Try	1	2
Awkwardly	1	2
Prepare	0	2

Table 14: LDC referent preference in case studies

	A Subject	**A Object**	**B Subject**	**B Object**
LDC Task 1 No Prime	X	XXXXX	XX	XXXX
LDC Task 2: Subject- Primed		XXXXXX	XX	XXXX
LDC Task 2: Object -Primed		XXXXXX		XXXXXX
LDC Task 3: Subject- Primed	XXXX	XX		XXXXXX
LDC Task 3: Object -Primed		XXXXXX	X	XXXX

Chapter 5: Discussion

The aim of this experimental research has been to investigate the referent choices of typically developing children between the ages of 7;11 and 11;8 in one type of obligatory control (object control) and one type of non-obligatory control (long-distance control). Sixty children were tested on three experimental tasks, designed to tap into whether, and how much, pragmatics could influence the children's interpretations of these constructions. As a syntactically regulated construction, in OC there was an expected correct response, namely the object. This was not the case for LDC, which, as a pragmatically regulated construction, could permit either the subject or the object to be chosen as the co-referent for the empty category. The children took part in three experimental tasks. In the first task, they were only presented with the control constructions. This was the no prime/base-line condition which would establish if the children had developed an adult-like grammar of OC and whether they held a preference for either the object or the subject as a coreferent in LDC. In the second task, a pragmatic cue was added as a weak prime in order to gauge the effect of a topic's introduction. In the third task, the topic was both introduced and reinforced as a strong pragmatic prime. In addition to the experimental tasks, the children also took part in a structured interview, where their comprehension of the control verbs was coded. Twelve adults performed the same experiments and also took part in the same structured interview. The adult responses served as a benchmark for what a developed grammar looked like and the children's performance was compared to that of the adults in order to code for comprehension. Additional standardised tasks were undertaken to assess the children's verbal (vocabulary and grammar) and non-verbal abilities. Several important generalisations could be drawn from the results. Firstly, in all three OC tasks, over 90% of the children's responses correctly identified the object as the control referent, indicating an adult-like grammar of OC for most of the children, as would be expected by this age. Specifically revealed in LDC, the children's bias towards a preference for the object as the referent for the empty category reduced with age. As they got older, more children were swayed by the strong topic prime to permit the subject as the co-referent of the empty category. This gradual shift is evidence of the children moving towards the adult grammar of LDC, yet not necessarily having acquired it by the age of eleven.

Current literature concludes that whilst OC is a syntactic, structurally governed construct, LDC is a pragmatic construct, whose interpretation is guided by the topic of discourse. It is known from the results of the adult controls that the addition of discourse in OC does not have an impact in an adult-like grammar. It can be argued then, that when children resist the interference of pragmatic discourse in OC, they have reached that adult-like stage of

acquisition. These tests provide a new way of ascertaining when a child has acquired a fully developed adult grammar of obligatory control. As with the adults, the children's choice of co-referent was expected to be open to manipulation by the addition of pragmatic cues in LDC. Whilst the results of this research were expected to confirm current thinking on the syntactic governance of OC, it contributed new research on children's development of LDC by discovering what other factors play a role in the child's referent choice and investigated the stages of their acquisition of LDC against that that of an adult grammar,

These results and their implications for acquisition will be discussed in the following way. Firstly, an overview of the results of the trials carried out into OC will be discussed and, as expected when considering the literature, it will be found that the majority of these show that OC is resistant to pragmatic input. The results of each of the three tasks will be considered individually, including an analysis of the errors that were made in OC, along-side other measurements such as the filler conditions, the standardised verbal and non-verbal tests and the coding of the children's understanding of the verb vocabulary in the sentences. These comparisons will enable us to narrow down where or why these mistakes arise.

Subsequently, results of the LDC tasks will be discussed. Recall, according to the literature, subjects are preferred topics. Therefore, the subject in LDC should have an impact on the referent choice, yet it will be shown that the early preference for the object as the co-referent of the ***ec*** in Task 1 suggests that something else overrides this factor. The effect of the pragmatic cues in each task on LDC will be considered next, along-side the nature of the verbs, specifically, assessing whether it is easier to shift the interpretation from one argument type to another and any patterns observed will be evaluated. Having examined both constructions in isolation, we will then proceed to draw a comparison between the OC and LDC trial results. By looking at the constructions in parallel, it is hoped to address whether there is evidence of any links between the two control constructions or whether, perhaps, one influences the other. This may go some way to addressing the requirement for further research suggested by Landau (2013) into "points of contact between syntax and pragmatics". Finally, the two case studies will be discussed in the anticipation that this will form a foundation on which to continue further investigations in support of second language acquisition, bilingualism and language development in atypical populations.

5.1 Obligatory Control

The constructions used to test the participants' acquisition of OC were object control sentences containing the verbs *ordered, persuaded* and *told.* There were two arguments in the matrix clause that could in principle be chosen as the antecedent for the ***ec*** in the embedded clause and each held different functions, one being the subject and one being the object of the matrix clause. Recall that the sentences were presented verbally, and were displayed on a computer underneath a pair of images illustrating the events of the sentence. One image displayed the correct choice of the object as co-referent carrying out the action, while the foil showed the subject being the actor of the task.

44 Harry told Luna to pop the balloon

These sentences remained constant in all three tasks, the variables being the addition of a weak introductory prime in Task 2 and a strong reinforcing topic prime in Task 3, as can be seen in example 45.

45a) Harry told Luna to pop the balloon

45b) Let me tell you something about Harry. Harry told Luna to pop the balloon.

45c) Harry is performing a new trick. Harry takes out the pin. Harry told Luna to pop the balloon

In order to establish how an adult- grammar responded to these tasks, the tasks were also administered to twelve adults. These were then analysed and linked to the children's responses and a summary of the patterns observed in the adult trials follows. Twelve adults participated in the same three tasks undertaken by the children. As would be expected in an adult grammar of a structurally governed construct, the adults overwhelmingly identified the object as the correct referent in OC, bearing out the hypothesis that OC is a syntactic component of grammar that is not impacted on by pragmatics. All of the 72 responses in Task 1 and 71 of the 72 responses in Tasks 2 and 3 correctly identified the object as the control referent. The two errors were not made by the same adult, or in the same task, so no pattern of errors was evident in the adult controls.

Similarly, a majority of the children that took part in these tasks identified the object as the correct referent in OC, giving evidence that they had acquired an adult-like control of OC, as would be expected from the literature. Most of the children ignored the pragmatic primes

provided in the OC tasks, indicating that their acquisition of OC was mostly developed, Indeed, even with addition of the strong prime in Task 3 (illustrated in Chart 6) the number of OC errors remained incredibly low, at 9% of 360 data points (*n=60*). Recall that Task 1 contained no introductory topic. For the OC constructions, there were six trials, with 60 children making responses, resulting in 360 data points. As illustrated in Chart 1, a considerable majority (90.83%) of the children's responses correctly identified the object as the obligatory control referent in OC. This rose to 95% of the trials being correct in Task 2, likely being due to the familiarity the children now had with the task. There was a dip back to 90.83% in Task 3, suggesting that the strong prime did have an impact on OC for a small number of the children. This is unlike the adult controls, where no such impact was identified. Having described the overall generalisations, the next section will concentrate on the children's errors with a view to understanding why they may have been made given that the existing literature has established the acquisition of OC at a much younger age.

5.1.1 Errors in OC

As has been discussed earlier, the literature indicates that the expected age for children to produce the structure of OC is four. All of the children in these trials were above that age, and for the majority of cases, this assertion of an early acquisition of an adult-like grammar of control was up-held. Specifically 92.13% of the 1080 OC responses gained from the children were correct. On consideration of the age of the children, and how OC may be developing, it can be seen that in the Year 3 age group, 290 out of 324 responses were correct (89.51%; *n= 18*), in Year 4, 59 of the 72 responses were correct (81.94%; *n=6*), 296 in 306 (96.73%; *n=17*) correct in Year 5 and lastly in Year 6 (the oldest children) 314 out of 342 (91.81%; *n=19*) were correct. Interestingly, then the few errors that were made, occurred across the age-groups and results did show a number of children making errors in their referent selection as late as eleven. It is of note that of the twenty-six children that made some errors, thirteen of them made only a single error which was not repeated in either of the other tasks. Of those thirteen children, nine made an error in Task 1 only, which could suggest an element of learnability in the trials themselves as these nine children got better at the tasks as the trials progressed. In order to allow for this progression, it may be that a more robust familiarisation training session is required when using this method of testing in the future. For these thirteen children then, their single errors would not be viewed

as stemming from an undeveloped understanding of control. If we factor out these children, that leaves thirteen children whose multiple errors might indicate that they have not yet acquired control fully. The table below lists the children who made multiple errors in OC, and these results will be considered as a focused sub-group:

Table 15: OC Errors in the Focus Group

Participant & Age	Task 1	Task 2	Task 3	TROG
P2: 8;0	XXXX	XXX	X	81
P5: 8;6	XXX		XXX	81
P10: 8;2	X		XXXX	95
P12: 8;2	XXXX			95
P14: 8;5	XX	X		104
P15: 8;2	X		X	62
P24: 9;8	XXX	XXXX	XXXX	99
P25: 8;11	X	X		81
P38: 10;9			XXXXX	92
P47: 11;5			XXXX	102
P49: 11;6	XX			92
P56: 10;11	XXX	XXXX	XXXX	83
P57: 11;1		XXX	XXXXX	102

As noted, a number of children in this OC focus group showed increased knowledge of OC as the tasks progressed, which could indicate a learnability of the structure itself, rather than just the requirements of the trial. It is noticeable that this is more prevalent in the younger children, with P2 (8;0), P12 (8;2), P14 (8;5) and P25 (8;11) making fewer errors as the tasks progressed, despite the addition of pragmatic content. Only P49 (11;6) showed a similar pattern of learning as these younger children. Alternatively, on considering which children seem to be led astray by the discourse content provided in Tasks 2 & 3, it can be seen that this is more likely to occur in the older children as participants P24 (9;8), P38 (10;9), P47 (11;5), P56 (10;11),P57 (11;1) all made more mistakes in Task 3 than Task 1, with only P10 (8;2) showing a similar pattern in those children aged under nine. Even more notably, three of these older children were the only ones in this focus group to make no errors in the first OC task, with results as would be expected of an adult-like grammar in Task 1. Contra to

what would be expected; the addition of the strong topic prime in Task 3 did sway these children from the obligatory referent to the subject. Despite P38 (10;9) and P47 (11;5) displaying an adult-like grammar in Tasks 1 and 2, they made 5/6 and 4/6 OC errors respectively in Task 3. Errors made by P57 (11;1) increased with each task, from 0 in Task 1, to 3/6 in Task 2 and 5/6 in Task 3, her grasp of OC becoming less robust as more pragmatic content was added. This is a clear topic effect. Despite the fact that OC is a syntactically governed construct, some children are still swayed by the discourse in their choice of referent, which was not evident in the adult controls, suggesting a complete understanding of control is not yet mastered.

If some children are still making such errors in a construction that is assumed to be acquired by age 5, consideration needs to be given as to why this might be. In the design of the fillers for Tasks 2 and 3, similar levels of topic primes were built in, in order to see if the children would be swayed by a comparable quantity of pragmatics when hearing simple embedded and SVO constructions. Neither P38 or P47 made any errors in their comprehension of the actions in these fillers, despite the high number of mistakes they had made in the strongly primed OC task, suggesting that primary pragmatics is not a diversion for them in other syntactic constructions. Similarly, P57 was not so heavily influenced by the added pragmatics of the fillers as that of the OC constructions; she had no errors of argument choice in the fillers of Task 2 (compared to 3 OC errors), however, twice in Task 3 was influenced by the discourse that introduced the SVO constructions (compared to 5 OC errors), so she may be more susceptible to pragmatic cues.

An innovation of this study was to include a test of children's understanding of some of the critical vocabulary items. This was to ensure that any children who faltered did not do so because of a lack of lexical knowledge. Children's comprehension was coded in case this was a factor in their choices. The child who made the most OC errors, across all three tasks, was P24 (9;8), nonetheless, she scored at ceiling on the coding of her comprehension of the verbs used, in line with results from P5, P56 and P57 who all made multiple OC errors. Conversely, P15 (8;2) was the only child in this OC focus group to score a 0 (no understanding) for the adverb awkwardly, and together with P49 (11;6) who scored 1 (some understanding) for 3 of the 5 verbs, these two children had some of the fewest OC errors in the group. It seems then that a lack of comprehension of the verbs' meanings is not a basis for these referent errors.

So far, we have seen that a minority of children continue to make OC errors. There is no developmental trend as we have seen the errors are scattered across the year groups. We have also seen that vocabulary comprehension of control verbs is not a crucial factor, as the

children who made errors generally succeeded with the structured interview technique. Importantly, some of the children only made one error and for many this was in the first task. These children then can be categorised as needing to get to grips with the task itself, rather than having a problem with control. But, there is a minority of typically developing children that do not fully acquire OC, at least as late as 11 years, and continue to be swayed by the pragmatic content when applying a referent to the empty category. This is a later than would be expected development in these children's grammar of control. The last vital factor to be checked was the children's scores on the standardised verbal and non-verbal tasks. Recall that all the children undertook the non-verbal KBIT task, the vocabulary BPVS task and the comprehension of grammar TROG task. Considering this focus group is made up of typically developing children, it might not have been considered that these factors could have implications in the development of control. On taking a closer look at the standardised scores, this group performed as would be expected on the BPVS and KBIT. Their good scores on BPVS link to their good scores on the vocabulary test administered in the interviews and neither seemed to be problematic. Equally, their scores on KBIT indicate that their non-verbal abilities are not a factor in this grammatical phenomenon. Crucially, however, there is evidence of lower ability in the TROG test, which is designed to test the children's reception of grammar. Ten of the thirteen children in this focus group scored below the standardised norm of 100, which suggests that there are other grammatical developmental issues at play. This result would substantiate one of the aims of this thesis, namely to empirically show control as a grammatical construct. It is those children that showed poor performance on a test designed to assess their abilities in grammar that have made the errors in their referent choice in our OC trials. The remaining three children in the focus group scored at expected norm levels in the TROG: P14 at 104, with P47 and P57 at 102. As was noted above, some of the younger children showed signs of learning across the tasks and P14 was one of those at just 8;5 whose errors fell from two in Task 1 (no prime) to one in Task 2 (weak prime) with no errors in Task 3. However, both P47 (11;5) and P57 (11;1) were influenced by the strong prime, so it seems may not yet have mastered a complete understanding of control, despite their standard TROG scores. Recall that P57 was the only child in the focus groups to have notable errors in the fillers of Task 3, reinforcing the possibility that she is more susceptible to pragmatic cues, despite the grammatical construct of the discourse.

Having achieved our aim of empirically substantiating object obligatory control as a grammatical construct, we move to the results of our investigation into long distance non-obligatory control.

5.2 Long Distance Control

As has been considered in Chapter 2, much of the linguistic research in to control has focused on the syntactic nature of OC. This is likely to be due to the individual disciplines within which much linguistic research is now carried out; OC is clearly in the realms of syntax whereas NOC cannot be so clearly labelled. This opens up numerous questions, and it is to this debate that this paper intends to add value. Some research argues that NOC should be left purely in the realm of semantics and pragmatics, and whilst the results offered by this paper would support LDC as a pragmatic construct there do appear to be elements of importance, not least the persistent bias for the object as control referent, despite considerable added discourse.

In line with the OC constructions, the critical LDC sentences remained constant in all three tasks. There were two arguments in the matrix clause that could be interpreted as the antecedent for the ***ec*** in the embedded clause and each held different functions, one being the subject and one being the object of the matrix clause.

46 Luna shouted to Harry that flying upside down was a great trick

To recap, in line with the OC constructions, the critical sentences remained constant in all three tasks. In Task 1, the sentences are presented in isolation. In Task 2, the sentences were preceded by the introduction of a topic, which constituted a weak prime and in Task 3 they were preceded by the strong reinforcing prime in the form of an introduced and then reinforced topic.

47a) Luna shouted to Harry that flying upside down was a great trick

47b) Let me tell you something about Harry. Luna shouted to Harry that flying upside down was a great trick.

47c) Harry is testing his broom. Harry takes off in the air. Luna shouted to Harry that flying upside down was a great trick.

Before we consider the children's responses, we turn first to the adults, as these will confirm the extent to which this construction's interpretation is led by a topic in adult grammar.

In the adult tasks, 69.44% of responses in Task 1 were object responses, whilst 30.56% of the responses were for the subject as the co-referent. In Task 2, the adults were primed by the object and the subject. On the addition of the weak object in Task 2, 84.72% were object responses, with 15.27% participants still choosing the subject. This trend was not repeated with the weak subject prime condition. The results showed that 66.67% were object responses and 33.33% were subject responses. This shows us that adults are not primed by the introduction of a topic in LDC. Conversely, in Task 3, the patterns displayed held for both strong subject and strong object primes. When the topic was both introduced and reinforced, 95.83% of the object primed responses resulted in object choices and 94.44% of the subject primed responses resulted in subject choices. These referent interpretations were reported in Chart 17. The results of this strong-prime condition show us that adult interpretations of LDC are determined by topics, when that topic is both introduced and then reinforced. With the adults' pattern clear, we can now consider the children's responses.

In the next section we consider the results of the children's responses and discuss how they compare to the patterns identified in the adult grammar above.

5.2.1 LDC in Task 1

Recall that subjects are preferred topics (Adler, 2006; Landau, 2013; Reinhart 1983) so it might be expected that the subject's potential topic status would give it primacy over the object as the antecedent for the ***ec.*** However, what was discovered was that without any pragmatic prime, a clear preference for object responses was shown in LDC. Crucially this was for adults and, as we will now see, for children, too.

For Task 1, a clear bias for the object was shown. 74.44% of the child participants opted for the object as the **ec**'s referent. Despite the fact that the children had free choice as to who was performing the action in the sentences and the accompanying pictures, hence choice of either as the referent for the embedded clause, they still showed a preference for the object as the ***ec***'s antecedent. It could be that as locality is required in OC, the children opposed long-distance relationships in NOC. However, as can be seen in later results, they were not simply treating the constructions as one and the same as they could be swayed by the addition of discourse, unlike with OC. Firstly, just as developmental trends were considered in OC trials so they will be discussed for LDC. The results indicated that age does not appear to be a factor in this bias for the object, as a similar spread can be seen across the age groups. When comparing these results of Task 1 with the adult responses it was found that 69.44% of adults also showed a preference for the object in the un-primed sentences.

The next factor to be considered was the verb types used in the constructions. It could be that certain verbs patterned more with certain types of responses. When looking more closely at the types of verbs used in the sentences, an increase was noted in the number of children who chose the subject as referent in those constructions containing the preposition *to after the verb (i.e. shouted to; said to),* as opposed to those containing the verb *told,* rising from 12.5 (20.83%) for *told* to 17 (28.33%). This may indicate that the relationship derived by the preposition between the subject and object in the matrix clause supports the child's interpretation of the control referent in the embedded clause. In terms of control, with the verb *tell* there is syntactic locality between the object and the ***ec*** in the embedded clause, which is not the case for the other two verbs, as the preposition ensures that c-command between the matrix object and the ***ec*** in the embedded clause is broken. Recall this structural locality is a condition of OC, which it seems may have a bearing on how the children interpret the co-referent in LDC, despite its pragmatic nature.

What has been identified in Task 1 then, is that children's responses pattern very much like the adults. Both groups show a bias towards the object in LDC in the absence of any prime. For both groups, this bias is strongest with the verb type tell, where there is a c-command relationship between the object and the ***ec*** in the complement. We have also seen that although there is a bias for one antecedent, this is not the same pattern as OC, where adults chose the object 100% of the time. This will become still clearer in the next sections, where we discuss the effects of the primes.

5.2.2 LDC in task 2

On first consideration of the effect of the added discourse in Task 2 it would appear that the introduction of a topic had no effect on the children's preference of referent. Indeed, when comparing Charts 6, 7 and 8 it can be seen that there is just a 3% shift to a preference for the subject over the object, despite the fact that the introductory sentence was designed to pragmatically prompt the participants to choose the subject.

Comparing Charts 2 and 5, there appears to be little effect of the weak prime "Let me tell you…" in Task 2. Overall, the movement in the number of responses between choosing a control referent as either the subject or subject is around 1%. Furthermore, even when taking into consideration the primes put in place to influence the children, there is only a 3% movement between choices made for either the subject or the object as control referent, as illustrated in Chart 6. A similar result can be seen in the adult control group in the case of subject control responses. Despite being primed, the responses that are swayed from the

object to the subject rise by less than 3%. However, this does not appear to be the case for the object responses made by the adults whose initial preference for the object is reinforced by addition of the weak prime, with object responses rising from 69.44% when no pragmatic prime was present to 84.72% when the weak prime was introduced. In an adult grammar of LDC, therefore, it is easier to shift subject responses to object responses than vice versa. Additionally, whilst this preference for the object is apparent in the developing grammar of the children, the switch of the referent's interpretation prompted by the weak prime is not evident.

Moreover, it is interesting to note that the difference in the number of children that opted for the subject was significantly less in the sentences containing the verb *told* compared with the verbs followed by the preposition *to*. This was first noted in Task 1, however, appears to be more noticeable in Task 2, with the addition of the pragmatic discourse. It can be seen in Chart 7, that 95 (26.39%) of the 360 subject-primes data points opted for the subject as referent. If this is split between the two types of verb, 14/120 (just 11.67%) chose the subject when the matrix clause contained the verb *told*, whilst 81/240 (33.75%) chose the subject when the matrix clause contained the preposition *to* between the subject and object. So, despite the referent of the embedded clause being primed for the subject, over 88% of the responses containing the verb *told* still preferred the object as referent, showing a clear bias for that argument. There may be a syntactic basis to this result. The matrix verbs were *told*, *said to* and *shouted to*. The verb *told* is the only example of these where the object c-commands into the non-finite clause. So, whilst LDC is a pragmatic construct, there does seem to be an impact into its interpretation from some syntactic elements. We return to this in the results of Task 3, which employed the strong pragmatic prime.

5.2.3 LDC in task 3

It is in Task 3 that the hypothesis of LDC being a pragmatic construct rather than a syntactic one can be illustrated more clearly. In this task, two sentences preceded the LDC construction being tested. The first sentence introduced a topic and the second reinforced that topic which resulted in a strong pragmatic prime. As has been discussed in section 5.1, for a large majority of children this added discourse did not influence their choice of referent in OC, with 91.67% being object responses in Task 1, 95% in Task 2 and 90.56% in Task 3. Conversely, as hypothesised, on comparing these results to that of LDC, an extensive switch from one argument as control referent to another can be seen.

As in the previous task, the trials were split equally between those that were primed for the subject and those that were primed for the object; the preceding discourse was now a strong pragmatic cue priming either the subject or the object as the sentence topic. Despite this equal distribution of strong primes, the overall results for Task 3 still showed that some of the children held a strong bias for the object, as illustrated in Chart 9. If one were to assume that the referent choice were purely topic-based in LDC, it would be expected that there would be an equal 50/50 split, in line with the primed constructions offered in the trial, whereas, of the total number of LDC constructions in Task 3, the split was nearer 60/40 in favour of the object as control referent. Later discussion will consider which individuals still favoured the object, despite being primed for the subject, and how these results compared to their performance with OC. This persistent bias held by some of the children for the object can be seen in Chart 9, where the introductory discourse was designed to heavily prime the subject, yet 30% of participants still preferred the object as the control referent.

Nevertheless, the trial showed that almost 70% of children were guided by the topic. In fact, the numbers of children in Task 1 opting for the subject as the control referent rose from 25.56% in Task 1 (no pragmatic cue) to 69.44% in Task 3, when provided with a strong subject topic prime. This seems a notable majority, yet when compared to the adult results it can be seen that it is far from an adult-like grammar of LDC. For the adults, 30.56% gave subject responses in constructs that contained no prime, and therefore showed an initial bias for the object that was slightly lower than the children. However, when faced with the strong subject topic prime in Task 3, the number of adults that gave subject responses rose to 94.44%, very similar to the number of their strong object primed, object responses (95.83%) in Task 3. There is a discrepancy then between the levels of resistance that is given by the children to move to the subject as co-referent than there is by the adults. Whether this develops in stages will be considered next.

Returning to Charts 13 to 16, we can see how the children's responses varied over the three tasks. It has been shown that, despite the strong prime, the children are more resistant to switching from the object to the subject than the adults. This seems to be a resistance that is broken down as the child's grammar of LDC develops as can be seen in the results from Task 3: in Year 3 (n=18), 62.96% of subject primed responses were subjects; in Year 4 (n=6), 61.11% of subject primed responses were subjects; in Year 5 (n=17), 67.65% were subjects, before finally rising to 79.82% in Year 6 (n=19), closest in both age and results to the adults. As the children get older, they are less resistant to choosing the subject as the referent, so something other than topic-hood must be at play that is guiding their earlier interpretations.

It is interesting that the pattern seen thus far when considering the results of the constructions containing the verb *told,* as opposed to the preposition *to*, seem to be broken in Task 3. It appears that when enough pragmatic content is present this reluctance to choose the subject as control referent begins to breaks down. Chart 9 shows that 250 responses (69.44%) to the subject-primed constructions opted for the subject as the control referent. If these 360 data points were split between the three verbs, in line with the discussion of Task 2 in section 5.2.2, it can be seen that 75 (62.5%) of the 120 responses were subject responses when the matrix clause contained the verb *told*, whilst 86/120 (71.67%) and 89/120 (74.17%) were subject primed subject responses when the matrix clause contained the verbs *said to* and *shouted to* respectively. Whilst the bias towards the object is still higher with constructions containing the verb *told*, its significance appears less as more discourse is added. As has been noted, there is an expected c-command with the verb *told* but not with the verbs *said to* and *shouted to*. It may be that the children analyse this verb as a control verb, given that it is a control verb in other constructions in the task, and it is only the addition of the strong topic prime that this interpretation is weakened. This suggests that whilst there may be a syntactic bearing on the interpretation of LDC, with enough preceding discourse this reading can be swayed.

Perhaps it is this idea of locality that is also having a bearing on the object bias that has been shown to be more resistant to change in the children than it is in adults. Despite the subject being both introduced and reinforced in this task, it has been shown that children are not as likely as adults to be directed by topic-hood. Un-like the locality of the c-commanding verb *told*, the object in the LDC is linearly more local to the embedded clause. For children, as their grammar of LDC develops, this linear locality of the object appears to hold precedence over the topic-hood of the subject, which is reduced as they gradually develop towards an adult like-grammar. The importance of this linear locality for the children was more evident in Task 3 when compared with the adult grammar, evidencing that even by the age of 11 (the oldest of the children trialled in this experiment) the children have not developed an adult-like grammar in LDC, un-like the results seen of their acquisition of OC.

5.3 Individualities Observed in the Development of OC ad LDC

It has been shown that one of the ways the developing children's grammar of LDC differs to the adult grammar is that more of the children retain a resistance to choosing the subject as

the co-referent, despite a strong topic prime, a resistance that reduces in stages with age, moving towards a more adult-like grammar. It has been shown that this resistance may be as a result of a primacy held by the object's linear locality for the children that holds precedence over the topic-hood. It is interesting that there appears to be a link between the children who were swayed to make errors in OC, which is less like the adult grammar, to those who were more often swayed by the strong subject prime in LDC, which is more in line with the adult grammar.

For these children, a strong topic prime over-rides both the syntactic governance of OC and the linear locality in LDC that was of note in the development of the other children. For example, P10, P24 and P47 each made 4 errors in their OC referent choice in Task 3 and all three of these children gave 100% subject responses to the strong subject primed constructions. P10 did not show the object bias previously observed in the six trials of Tasks 1 and 2, making two and three object responses respectively, whilst P24 showed the pattern that has been generalised above preferring the object four times in Task 1 and five times in Task 2. On the other hand, P47 never chose the object in Tasks 1 and 2, yet was swayed by the strong prime on all three occasions in Task 3. So, whilst there may be a link between the likelihood of a child making errors in OC and their preference for the topic, there is variety in their initial, un-primed interpretations. These results raise questions for further research in this area, particularly into why a few typically developing children such as these do not develop a full understanding of OC at such a late age. As might be more expected, the children who were not swayed to make subject responses by the strong topic prime in LDC made no OC errors.

5.4 Case Studies

The number of volunteers for this study was in fact sixty-two, rather than sixty. Two of the children, both males and both in the Year 4 age group, had to be excluded from the main study of typically developing, monolingual participants. Participant A was diagnosed with autism spectrum disorder (ASD) whilst participant B was a Polish native speaker who had only been exposed to English for the last three years. Whilst their results could not form part of the main discussion into the development of control, their data is discussed here, adding value to this thesis as well as highlighting a need for further research in other populations.

In considering the results of these two children, it is interesting to note that neither of them made any errors at all in assigning an object referent in OC, illustrating that both had developed an adult-like grammar of OC. This was despite the fact that both boys scored below norm on the test of reception of grammar (TROG) which was reported to be an issue in the main group when errors in OC had been made. Some elements of syntax may cause them problems, but that does not seem to be the case for obligatory control.

On consideration of referent preference in LDC, the two children have very different results, and thus will be discussed individually, in conditions that compare each with what has been learned from the main group. Firstly, participant A showed a strong bias towards the object as the ***ec*** referent in Tasks 1 and 2, in line with the results discussed above. Unlike so many of the developing children in the main group, participant A did show that his referent choice could be swayed with the addition of the strong topic prime, similar to many of the adult controls. It is unsurprising that he made 100% object responses in the strong object topic cues of Task 3, as it can be seen in Table 14, that he already held a preference for this interpretation in the previous trials. Nonetheless, he was susceptible to being primed towards the subject by the strong topic, resulting in a shift from making no subject responses in Task 2, to four in Task 3. A different picture of LDC is given by the responses from participant B. Interestingly he was more open to making subject responses in the early tasks than he was with the addition of the stronger topic prime. In Task 3, despite strong subject topic primes, participant B never made a subject response to those cues. He did once offer a subject response in Task 3 in response to an object primed cue, and twice when presented with the weak subject prime in Task 2 and no prime in Task 1. This may be because, as we have seen in the literature, there have been differences noted cross-linguistically in the acquisition of non-obligatory control and it may be that he is applying his knowledge of his native language. Polish is a pro-drop language, un-like English which as stated in the opening of Chapter 2 requires a subject; further study of a larger population would be worthwhile to investigate what is actually happening here. As might be expected, participant B's vocabulary score on the standardised test was lower than the norm expected for native speakers, but his codes on the verb comprehension were all 2s, apart from the verb *persuade* which was coded as a 1 but did not impact on his interpretations of OC. The disparity in these two children's results in LDC prompt questions to be asked in further investigation.

Chapter 6: CONCLUSION

The aim of this thesis was to investigate how children interpret control constructions; how do they apply referents for the empty category in obligatory control and non-obligatory control? Contained within our objectives was the expectation to confirm the established theory of obligatory control (OC) as a syntactically controlled construct, and the intention to inform current research into the acquisition of the pragmatically governed, non-obligatory long distance control construct (LDC). As expected, the syntactic properties of OC were evidenced in the empirical tasks undertaken. What was discovered was the gradual acquisition of LDC. Children aged as old as eleven do not display an adult-like grammar of LDC, bearing out the hypothesis of a staged nature to its acquisition and informing current literature on the age of that acquisition.

Review of the most relevant methods has taken place and one area in which this investigation is unique is in its undertaking to ensure that a possible lack of comprehension of the verbs in the control constructs did not impact on any investigations being carried out. To this end, a coding scheme was developed of the verbs being used in this research. It ensured that any children who faltered on the control tasks did not do so because of a lack of lexical knowledge.

The results in all three tasks for OC were that over 90% of the children's responses consistently identified the object as the correct control referent. The errors that some children made in OC were examined and compared to the development of their referent choices in LDC as well as the other verbal and non-verbal measures assessments carried out. With the standardised tests for the reception of grammar (TROG) it was found that a majority of those children that had made multiple OC errors had difficulties in other areas of grammar, confirming its syntactically governed nature.

In LDC, a developmental path was shown. Specifically, in Tasks 1 and 2, children's response patterns were seen to be very much like the adults. Both groups showed a bias towards the object in LDC in the absence of any prime. Despite being cued with a weak topic prime, this object bias held for both groups in Task 2. For both groups, this bias was strongest with the verb type *tell*, suggesting that there may be an element of locality informing the LDC referent choice as it was only with *tell* that there was a c-command relationship between the object and the ***ec*** in the complement. This pattern began to break down for both groups in Task 3. However, the children and adults did diverge here with the impact of the strong prime in Task 3. The children retained a resistance to choosing the

subject as the co-referent, despite a strong subject topic prime, whilst the adult bias for the object was over-ridden by the strong pragmatic cue. It was shown that the children's resistance reduced in stages, gradually moving towards a more adult-like grammar as the children got older. Therefore, it was easier to shift object responses to subject responses in an adult grammar of LDC than it was for children. We suggested that this resistant preference for the object in the developing grammar of the children showed that as their grammar of LDC developed, the linear locality of the object holds primacy over the topic-hood of the subject. It is only on the full acquisition and understanding of an adult-like grammar of LDC that this linear locality gives way to the cued topic.

This investigation has focused on monolingual, typically developing children that are English native speakers. Opportunities for further research lie in cross-linguistic research, atypical populations and with older children in order to further research the later stages of this shift to an adult-like grammar of long-distance control.

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APPENDICES

Task 1 Sentences

1 OC 1 ord	Hermione ordered Harry to mix the flour.
2 OC 2 ord	Harry ordered Hermione to mix the flour.
3 OC 3 pers	Ron persuaded Hermione to kick the ball.
4 OC 4 pers	Hermione persuaded Ron to kick the ball.
5 OC 5 tell	Luna told Harry to pop the balloon.
6 OC 6 tell	Harry told Luna to pop the balloon.
13 NOC 1 LD tell	Harry told Luna that pouring the water quickly was a big mistake.
14 NOC 2 LD tell	Luna told Harry that pouring the water quickly was a big mistake.
15 NOC 3 LD say	Ron said to Hermione that waving the wand slowly was the best way.
16 NOC 4 LD say	Hermione said to Ron that waving the wand slowly was the best way.
17 NOC 5 LD shout	Harry shouted to Luna that flying upside down was a great trick.
18 NOC 6 LD shout	Luna shouted to Harry that flying upside down was a great trick.
25 Filler 1 emb	Hermione said that Ron is feeding the owl.
26 Filler 2 emb	Ron said that Hermione is feeding the owl.
27 Filler 3 emb	Hermione said that Ron is popping the balloon.
28 Filler 4 emb	Ron said that Hermione is popping the balloon.
29 Filler 5 emb	Harry shouted that Luna is kicking the ball.
30 Filler 6 emb	Luna shouted that Harry is kicking the ball.
37 Filler 1 SVO	Hermione is feeding the owl.
38 Filler 2 SVO	Harry is lifting the book.
39 Filler 3 SVO	Hermione is kicking the ball.
40 Filler 4 SVO	Ron is rowing the boat.
41 Filler 5 SVO	Harry is mixing the flour.
42 Filler 6 SVO	Luna is kissing the owl.

Task 2 Sentences

1 OC 1 ord	Let me tell you something about Hermione. Hermione ordered Harry to mix the flour.
2 OC 2 ord	Let me tell you something about Harry. Harry ordered Hermione to mix the flour.
3 OC 3 pers	Let me tell you something about Ron. Ron persuaded Hermione to kick the ball.
4 OC 4 pers	Let me tell you something about Hermione. Hermione persuaded Ron to kick the ball.
5 OC 5 tell	Let me tell you something about Luna. Luna told Harry to pop the balloon.
6 OC 6 tell	Let me tell you something about Harry. Harry told Luna to pop the balloon.
13 NOC 1 LD S tell	Let me tell you something about Ron. Ron told Hermione that pouring the water quickly
14 NOC 2 LD S tell	Let me tell you something about Hermione. Hermione told Ron that pouring the water q
15 NOC 3 LD S say	Let me tell you something about Harry. Harry said to Luna that waving the wand slowly
16 NOC 4 LD S say	Let me tell you something about Luna. Luna said to Harry that waving the wand slowly w
17 NOC 5 LD S shout	Let me tell you something about Harry. Harry shouted to Luna that flying upside down w
18 NOC 6 LD S shout	Let me tell you something about Luna. Luna shouted to Harry that flying upside down w
13 NOC 1 LD O tell	Let me tell you something about Hermione. Ron told Hermione that pouring the water q
14 NOC 2 LD O tell	Let me tell you something about Ron. Hermione told Ron that pouring the water quickly
15 NOC 3 LD O say	Let me tell you something about Hermione. Harry said to Hermione that waving the wan
16 NOC 4 LD O say	Let me tell you something about Harry. Hermione said to Harry that waving the wand slo
17 NOC 5 LD O shout	Let me tell you something about Luna. Harry shouted to Luna that flying upside down w
18 NOC 6 LD O shout	Let me tell you something about Harry. Luna shouted to Harry that flying upside down w
25 Filler 1 emb	Let me tell you something about Ron. Ron said that Hermione is feeding the owl.
26 Filler 2 emb	Let me tell you something about Luna. Luna said that Harry is waving the wand.
27 Filler 3 emb	Let me tell you something about Harry. Harry said that Luna is pouring the water.
28 Filler 4 emb	Let me tell you something about Hermione. Hermione said that Harry is mixing the flou
29 Filler 5 emb	Let me tell you something about Ron. Ron said that Luna is rowing the boat.
30 Filler 6 emb	Let me tell you something about Hermione. Hermione said that Ron is drinking the potio

Task 3 Sentences

1 OC 1 ord	Hermione is having a party. Hermione prepares all the food. Hermione ordered Harry to mix t
2 OC 2 ord	Harry is having a party. Harry prepares all the food. Harry ordered Hermione to mix the flour.
3 OC 3 pers	Ron is learning a new game. Ron practises the rules. Ron persuaded Hermione to kick the ball
4 OC 4 pers	Hermione is learning a new game. Hermione practises the rules. Hermione persuaded Ron to
5 OC 5 tell	Luna is performing a new trick. Luna takes out the pin. Luna told Harry to pop the balloon.
6 OC 6 tell	Harry is performing a new trick. Harry takes out the pin. Harry told Luna to pop the balloon.
13 NOC 1 LD S tell	Harry is making a potion. Harry holds the cup awkwardly. Harry told Hermione that pouring t
14 NOC 2 LD S tell	Hermione is making a potion. Hermione holds the cup awkwardly. Hermione told Harry that p
15 NOC 3 LD S say	Ron is practising magic. Ron tries a difficult spell. Ron said to Luna that waving the wand slow
16 NOC 4 LD S say	Luna is practising magic. Luna tries a difficult spell. Luna said to Ron that waving the wand slo
17 NOC 5 LD S shout	Harry is testing his broom. Harry takes off in the air. Harry shouted to Luna that flying upside
18 NOC 6 LD S shout	Luna is testing her broom. Luna takes off in the air. Luna shouted to Harry that flying upside d
13 NOC 1 LD O tell	Luna is making a potion. Luna holds the cup awkwardly. Harry told Luna that pouring the wate
14 NOC 2 LD O tell	Harry is making a potion. Harry holds the cup awkwardly. Luna told Harry that pouring the wa
15 NOC 3 LD O say	Hermione is practising magic. Hermione tries out a difficult spell. Harry said to Hermione that
16 NOC 4 LD O say	Harry is practising magic. Harry tries out a difficult spell. Hermione said to Harry that waving t
17 NOC 5 LD O shout	Luna is testing her broom. Luna takes off in the air. Harry shouted to Luna that flying upside d
18 NOC 6 LD O shout	Harry is testing his broom. Harry takes off in the air. Luna shouted to Harry that flying upside
25 Filler 1 emb	Ron is looking after the birds for the day. Ron puts the food into the bowl. Hermione is feedin
26 Filler 2 emb	Luna is learning a difficult spell for a class test. Luna says the magic words slowly. Harry is wav
27 Filler 3 emb	Harry is making a magic potion for the whole class. Harry lifts up the yellow cup. Luna is pouri
28 Filler 4 emb	Hermione is inviting the whole class to a birthday party. Hermione prepares a beautiful choco
29 Filler 5 emb	Ron is taking a trip out onto the Hogwarts lake. Ron takes hold of the wooden oars. Luna is ro
30 Filler 6 emb	Hermione is mixing up the ingredients for a spell. Hermione holds up the small blue goblet. R

Adult Responses for Coding

1. What does it mean when you persuade someone?

C: You change their mind on a subject.

P: Through reasoning or explanation you convince someone of the validity of a position of which they were sceptical or to which they were previously opposed.

G: You manage to change someone's mind about something.

L: You convince someone of your way of thinking about something.

T: You convince someone that your opinion is right.

F:

J: You encourage them

Jo: You encourage them to do something and they do it.

Ja: Get somebody to do something.

A: Help them make their mind up about something I want them to do.

Pe: Talk them into doing something you want.

R: You convince them it's the right thing to do.

2. What does it mean when your order someone?

C: You tell them or instruct them to do something you want them to do.

P: From a position of superiority, recognised by the other person, you impose your will regardless of his or hers.

G: You tell them to do something, expecting them to do it.

L: You demand something of someone.

T: You tell them what to do.

F:

J: You command them

Jo: You're telling them to do something.

Ja: You tell someone to do something.

A: You tell them.

Pe: Tell them to carry out a duty.

R: You tell them.

3. What does it mean when you try something?

C: You experience or attempt it probably for the first time.

P: You attempt something without knowing the outcome, often for the first time.

G: You do something you have not done before.

L: You attempt something in order to succeed or do something for the first time.

T: You attempt it or experiment for the first time.

F:

J: You attempt it.

Jo: You attempt it.

Ja: You give something a go.

A: You experiment with it.

Pe: You test something out.

R: You experience something new

4. What does it mean when you do something awkwardly?

C: You feel uncomfortable/embarrassed; you do it in an uncomfortable manner.

P: Your attempt is less than perfect, even unsatisfactory, more probably physical, but also intellectual.

G: You are doing something not so fluidly or as it should be done.

L: You do it in an inefficient manner.

T: You struggle to do something and you do it clumsily.

F:

J: You do it with difficulty.

Jo: You do it incorrectly.

Ja: You do it uncomfortably.

A: You seem very clumsy.

Pe: Do it in a 'cack-handed' way.

R: You're uncomfortable with whatever you're doing and generally not doing it right.

5. What does it mean when you prepare something?

C: You ready yourself or it.

P: You set out to accomplish or finish something before it is needed.

G: You get something ready.

L: You make something in time for a specific occasion.

T: You get something ready.

F:

J: You make something, concoct something…

Jo: You arrange something.

Ja: You get something ready.

A: You get things ready.

Pe: You get it ready for use.

R: Get ready.

DOBs, Profession and gender

C:	Carpenter, 30/04/1958	56.M
P:	Retired conflict analyst, 09/12/1941	72.M
G:	Nursery school assistant, 26/07/1971	44.F
L:	TEFL teacher, 06/05/1991	23.F
T:	English school teacher, 26/08/1972	42.F
F:	Caterer,	64.F
J:	Stationer, 31/12/1946	68.M
Jo:	Chef, 24/01/1989	25.F
Ja:	Gardener,	27.F
A:	Retired publican, 05/06/1949	65.F
Pe:	Retired driller, 14/07/1945	69.M
R:	Book-keeper, 12/01/1981	34.F

Children's Responses for Coding

2

1. Talk them in to doing something.
2. You're telling them what to do.
3. You're attempting something.
4. You do it in a strange way.
5. It's like when you have a party you have to set it up and sort out all the food and drinks.

3

1. Telling you what to do when you don't want to do it but you have to, like, they make you want to.
2. You do something that you say.
3. Work it out for yourself.
4. A bit weird.
5. You need to get ready.

4

1. You draw them into that decision that you think is right. Like…kick the ball and they do it.
2. You tell them to do it – you make them do it. Tell them what to do.
3. You attempt to do something – you want to so you keep trying.
4. It's when you do it and it's difficult or hard. It's embarrassing cos you're not doing it in the exact way it's supposed to.
5. Get organised.

5

1. If someone didn't like dogs you'd persuade them to like them. You might give them good ideas to make them like it.
2. You tell someone to do it.
3. You just give it a go.
4. You do it a bit weird, so you might walk weirdly, not normal, different.
5. It means to organise something that you need for something to happen.

6

1. You're trying to get them to do something like bribing them and if you do persuade them they do it.
2. Tell them to do something.
3. Give it a go.
4. When I want something that I keep asking for I'm being awkward, or if there's a long silence. If you're doing something awkwardly it means you're doing the hardest and weirdest way possible.
5. You get ready, like when I help prepare dinner and I set the table.

7

1. Get someone to do it when at first they don't want to.
2. You have to do it if someone orders you.

3. You have a go at doing it.
4. Doing it a bit unusual, not normal.
5. Make something or get ready something.

8

1. Try and get them to do something. Like, I dare you to shoot and they say no – you tell them it's really fun and you're missing out so then they do.
2. Like the King, he orders someone, like he's telling them what to do.
3. Trying a new thing you might…like, when I first tried *loom bands* I couldn't but when you practice and try you can.
4. Doing it weird.
5. It means, like, get ready.

9

1. You're trying to get them to do what you say.
2. You demand them to do it.
3. Giving it a go.
4. You're doing it at a wrong angle or you're doing it wrong to the normal way a person does.
5. You're going to get everything, say like to get ready for a party.

10

1. Tricking someone in to doing something.
2. Tell them what to do.
3. Doing something and seeing if you can do it.
4. A bit wrong; like if you want to kick the football it goes the wrong way.
5. You're getting ready something to do it.

11

1. You want them to do something so you say something good about it.
2. Say to do something.
3. If you haven't done it before you would do it.
    a. *Can you always do it?* No, you can't always.
4. Doing it, well it seems a bit hard because you can do it but it looks a bit weird.
5. Getting ready for something.

12

1. Where someone is trying to get you to give something to them or saying something is really good so you do it.
2. Tell them what to do.
3. Try something new what you've never done before.
    a. *Can you always do it?* No, you don't always get it right.
4. It means like, you're doing it in some way that you're doing it is kind of the wrong way so it might take a long time and would look like a big mistake.
5. Getting ready for something, like a party.

13

1. You get them to do it.
2. You tell them to do it.
3. You do something you've never done before but it doesn't work out all the time.
4. Doing it normally.
5. You're getting everything ready.

14

1. It means you tell them it's really great and they do it.
2. It means like you're telling them to do something.
3. Trying it out to see if you like it or not and you might not like it or be any good at it.
4. It's like embarrassing because if you're doing it weirdly, that's like awkward.
5. Get some stuff ready for something.

15

1. You tell them to do something and you tell them all the good things about it so they want to do it.
2. You make them do something.
3. You, like, do it, like you've never done before but if you do try it you might get it right.
4. You do something and it's hard so you're trying to do it.
5. You're going to get stuff ready.

16

1. If someone doesn't want to do it, it's like you're trying to get them to do it and so they do.
2. Tell them to do something.
3. You don't know if you're absolutely right but you have a go at it anyway.
4. When you do something and it's a bit like, it really feels a bit wrong.
5. Like, if you're going on holiday you're packing all your stuff up to get ready to go.

17

1. It's a bit like making them want to do it…so if they think it's not fun you make them think it is and they come and do it.
2. Telling them to do something you want them to do.
3. You might find something really fun and it might be the best thing you've ever done if you just try.
4. Like something weird, you're doing it weird.
5. To get something all set up, like setting up a hot-air balloon.

18

1. Say, if someone has thrown rubbish on the beach you persuade them not to. You could make a poster to show them and make them not throw the rubbish.
2. You have to do it.
3. If you've got a new skateboard you can try, like, practise so you get better at it.
4. When you're doing it a bit wrong.
5. If you like, have got a party or something you need to get ready the decorations and the cake.

19

1. Telling them what to do, like if you told them to get something from under the car.
2. They want to talk to me about something.
3. Trying your best – if you don't know it you still try your best.
4. Doing it weird.
5. Sorting out things first, like if you was having a party.

20

1. You tell them and try to make them do something they don't want to do but you persuade them.
2. Telling them what to do.

3. You try to do it and you think you can but sometimes you can't.
4. You kind of do it wrong and it can be embarrassing.
5. Say, you're having a party, you have to prepare everything like what you are going to eat and organise it all.

21

1. When you, like, if they say, "No," you say, like, "It's really awesome." It's like when you give more detail about something to make it sound good so they will do what you want.
2. You tell them what to do.
3. You have a go at it.
4. When you do something, like when you do it a bit weird and it looks a bit embarrassing.
5. When you get ready for something like when you get ready for a holiday or a wedding.

22

1. You're trying to make them do it, like, if they don't want to do it they might say, "Persuade me, give me a reason."
2. That person needs to do it.
3. You need to do your best but you don't really need to complete it.
4. Awkwardly is like you're doing it a bit weird or doing it in not a normal way.
5. You need to, like, if there was a birthday party you'd have to put balloons up and get all the food ready.

23

1. It means that you're saying stuff to make them want to do something.
2. Tell them, "Go and do it."
3. Never give up.
4. It seems a hard thing to do.
5. It's when you get ready, like you get stuff ready.

24

1. That you're trying to tell them to do something that you want them to do, but they don't want to until you, like, get them to.
2. You tell them what to do - whether they like it or not.
3. See if you can do something and if you can you keep doing it or you learn how to do it.
4. You do it sort of not right; you don't really know how to do it…well you know how to do it but you're not doing it right.
5. When you get stuff ready.

25

1. Does it mean that you beg them, like, and say, "Please can I go to the park?" and keep on saying it until they say yes.
2. A bit like command really – you basically tell them to do something.
3. If you try…your 4 times table and you're not on them it means you're trying – like something new that you can't do.
4. You're doing something different to what a normal person would.

5. You have to do something, say for a party and organise things for them to come.

26

1. That you're trying to get someone on your side and you're try to…say if there's an argument you want the person to agree with you and agree with you.
2. You're telling someone to do something and that someone is under your control.
3. You haven't done it before but you're seeing how good you are at it or making yourself better at it.
4. They do it strangely and a bit cack handed.
5. You're getting ready in advance.

27

1. To, like, get them into, make them think something and that is what they want to choose.
2. You tell them to do something.
3. Give something a go.
4. It means like an awkward silence, when no one talks. Or like when you haven't done something properly.
5. You organise something, so like you buy all the things if you making it and if you going to have a party you get everything set up or when you wake up in the morning you get ready for your job so that you have everything prepared for you.

28

1. You're trying to get them to do something.
2. You tell them what to do.
3. You're doing something new that you can't always do.
4. It means when you're not so sure what to do so you might do it the wrong way.
5. Getting ready.

29

1. They don't want to but you're trying to get them more convinced to do something.
2. Tell them to do something.
3. There's something you haven't done before but you do it and see what it is like.
4. They make it seem harder. They could do it easier. They're not doing it very well.
5. Get something ready for something.

30

1. They don't particularly agree with you but you are trying to get them to see your point of view.
2. Telling them what to do.
3. Won't particularly succeed but you're trying to. You do it whether you fail or not.
4. It means, it's like it's a bit weird really. You do it, like when you try to be cool or something and the other person will say that was weird cos it's just odd the way you do it.
5. You've got it ready beforehand instead of just before you're about to leave otherwise you might have forgotten to pack it in your case.

31

1. You're trying to make them do something.
2. You say I'm in charge and you have to do that.
3. It means you doing something that you can't do properly.
4. Struggling to do something and it would look like you were doing it a bit confusingly.
5. It means to organise something that you need for something to happen.

32

1. You are basically saying it's a good idea so they do it.
2. You're telling them to do something – you're forcing them.
3. You're having a go at it.
4. You do it a little bit stupid or weird because it's not really the normal way.
5. You get it ready for something.

33

1. That you really want him or her to do it so you're trying to make them do it.
2. They have to do what you tell them to do.
3. You don't think you'll like it but you're going to try so you have a go at it.
4. Doing it a bit weirdly.
5. Get organised.

34

1. You're trying to get them to get something for you. For example a pet you say "I really really want one…"
2. You tell someone what to do.
3. Having a go.
4. They don't really know how to do it so they're not very good at it cos they're like all cack handed.
5. You get everything ready, like when you're getting ready for a party and you put out the decorations.

35

1. You both think different things and you make someone think the same as you.
2. You tell someone to do something.
3. Do something you've never done before.
4. *Forgot to ask her*
5. When you prepare something you get something ready.

36

1. You're urging them to say go and and do it – maybe daring someone to do something.
2. Tell them, in,a way bossing. Like 'the boss ordered the worker to build a house'
3. Attempt something. Like 'a boy that tries to run while carrying a bowl of cornflakes.'
4. You do something that is not the normal way. Maybe because you don't know the proper way.
5. When you're getting ready. For example, getting ready for a party.

37

1. If you have an opinion you stick to it and you want a person to agree with you, you explain what you think to make it sound a lot better than it is.
2. Tell them what to do.
3. Have a go at it.
4. It looks embarrassing and wrong.
5. Organise it so that if you're having friends over you decide how to lay the table and what you're having.

38

1. It means if someone is wanting someone else to do something the person who is playing tries to persuade the person to do it.
2. You have to do something because if you are at work you hear a boss and he tells you to do something you have to do it.
3. If you're not good you try to do it and you either try to do it you're going to do something you haven't done before.

4. You're doing something, a bit, well, not doing it right, a bit silly.
5. Getting ready to do something.

39

1. Get them to do something, helping them to do it if they don't want to.
2. Tell them to do something.
3. Do it, but it doesn't always work well.
4. Weirdly. You do it strangely.
5. Like making something ready before a party. You'd make it before the guests come.

40

1. You try and make them do something they don't want to do.
2. They want something done so they tell you and make you do it.
3. Have a go.
4. You do something in a way that's clumsy and not right.
5. Get ready.

41

1. Try and get them to do something.
2. Tell them to do something.
3. Have a go at something.
4. Something weird.
5. Getting ready.

42

1. If you want someone to do something you try and get them to do it. You're persuasive.
2. It kind of means you want it done fast and you might shout at them when you tell them.
3. You try new things you don't really know what it is so you try to do it.
    a. Follow up Question…Can you always do it…"No"
4. Doing it nervously and it looks like a difficult way of doing it.
5. When you prepare you make sure everything is as it should be so, like, if you're having a birthday party you try to get the food ready before they come.

43

1. You're telling someone something is right and to do it.
2. You tell someone to do something.
3. Have a go at something.
4. You don't do something the easy way you do it the hard way. It doesn't mean you can't do it. You just do it in a difficult way.
5. Getting ready; say someone wants to make something like a cake, they would get ready all the ingredients.

44

1. Try to get them to do something for you or to do something.
2. Telling them they have to do it.
3. You do something but don't always want to if it looks horrible or something.
4. You're doing it not the easiest way you could do it.
5. Get ready for something to happen.

45

1. You convince them to do something.

2. You tell them to do it.
3. Do it – but fail, though not all of the time.
4. They do it strangely. They don't do it as other people do it. They do it in their own way
5. You get all of the stuff you need ready before you start.

46

1. Trying to get them to do something you want.
2. You're telling them to do something.
3. You're having a go at something.
4. Doing it in a strange way.
5. Getting ready to do something.

47

1. Trying to tempt someone to do something
2. Telling them to do something.
3. You want to do something when it is hard to you still want to conquer it.
4. It's when you do something weird, different or badly.
5. Getting something ready.

48

1. You get them to do something you want them to agree with.
2. Tell them to do something.
3. You test yourself.
4. If you do something awkwardly it looks or feels weird. You do it quite well but not good enough.
5. You get something ready, like for a party.

49

1. You try and get them to do something.
2. Get the things that they wanted.
3. You're not that confident about something but at least you do it.
4. It's when you do something and you get embarrassed and it's awkward. You don't really do it correctly.
5. You get ready for it, and hmm not sure.

50

1. If it's an advert, like, they have less money than another shop that persuades you. It's attracting you to go there.
2. Tell them what to do.
3. You have determination in yourself and you practise.
4. Like if you're doing something, you do it a bit wrong and in a funny way.
5. It's like when you have a party, you have to set it up and sort out all the food and drinks.

51

1. You make them so something they don't want to.
2. You tell them to do something.
3. Doing something new that you can't definitely do.
4. You do it out of the ordinary. You do it not so well.

5. You get ready for something.

52

1. Try and make them do what you think and want.
2. You tell them to do it – not ask them.
3. You put your all in to it.
4. It means you're not doing it well. You put yourself under pressure too.
5. Get it ready before it happens.

53

1. Get them to do something for you.
2. Tell them to do something.
3. Do it for the first time.
4. You do it quite badly. You wouldn't do it very well.
5. You get ready to do something.

54

1. Try and get them to do something you want them to.
2. Get them to do something.
3. Give it a go.
4. Nobody can reply to it. I mean people can't really talk about it if it's done awkwardly because it might embarrass that person and they can't help it cos they can't do it properly.
5. You get ready.

55

1. They don't want to do something but you're trying to change their mind and convince them to do it.
2. Giving them a command. You're not giving them a choice.
3. You don't know the outcome. Doing something when you don't know what is going to happen.
4. They're doing it not the way it would normally be done. Usually it's for a reason but they might not want people to know what it is. So if you're walking awkwardly, you might be hiding something in your trousers so to disguise it you walk in an odd way.
5. It's like getting ready, doing something to it to get it ready before it serves its purpose.

56

1. You make them want to do something.
2. Command them to do something.
3. Do something you haven't done or tried before.
4. It's when you do something that is weird because it's not something people do every day.
5. You get something ready for an event or something that's going to happen.

57

1. Try and tell them, using strong language, to get them to do something you want them to.
2. Speak to them directly to make sure they will do something.
3. Having a go.
4. It's when you don't do something in the normal way. You don't do it very well.
5. When you get it ready for something.

58

1. You give them good reasons to persuade them to see your point of view. (If Mum persuades you…yes"
2. Say, "Do it now," or shout at them.
3. Give it a go, even if you're not good at it.
4. It's when you're a bit clumsy and you can't do it properly.
5. Plan ahead before you do something so you know what you're going to be doing.

59

1. You try and get them to do something.
2. You say that you have to do something.
3. Do it – but not sure about it.
4. It's when you do manage to do it but not very well
5. Get something ready.

60

1. You have to try to get them to think what you think.
2. You tell them to do something.
3. You have a go.
4. You do it in a difficult way or from a different position than you're supposed to do it.
5. Get everything ready for that certain event or thing.

61

1. Getting them to do something, giving reasons to do it.
2. Tell them to do something more sternly; you tell them they have to do it.
3. Give it your best shot. Risk failure.
4. It's when you haven't had much practice at something. So you might make mistakes when you do it.
5. Getting ready to do something.